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December 7, 1959

RAILWAY AGE *weekly*

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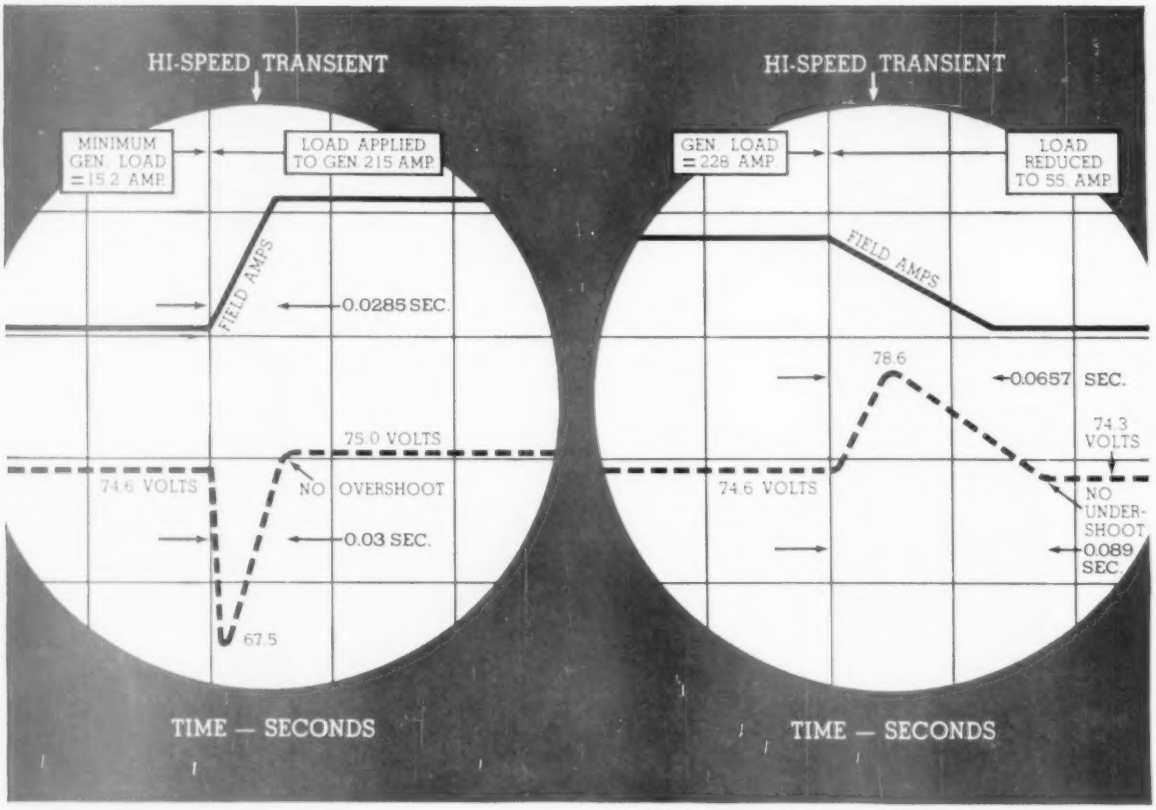

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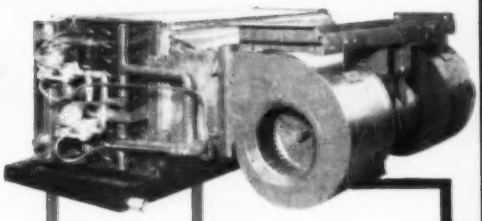

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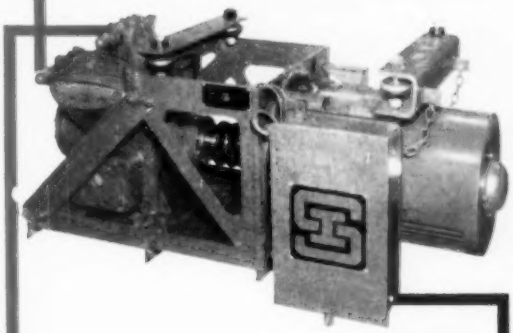
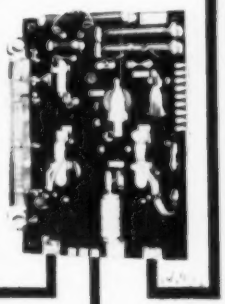
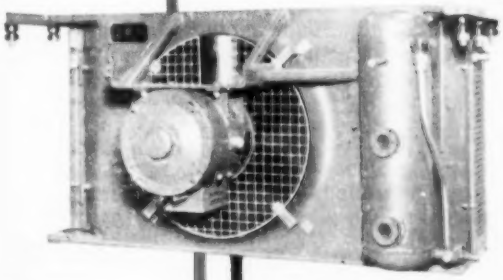


"SAFETY" DIRECT DRIVEN COMPRESSOR



"SAFETY" MOTOR CONTROL PANEL



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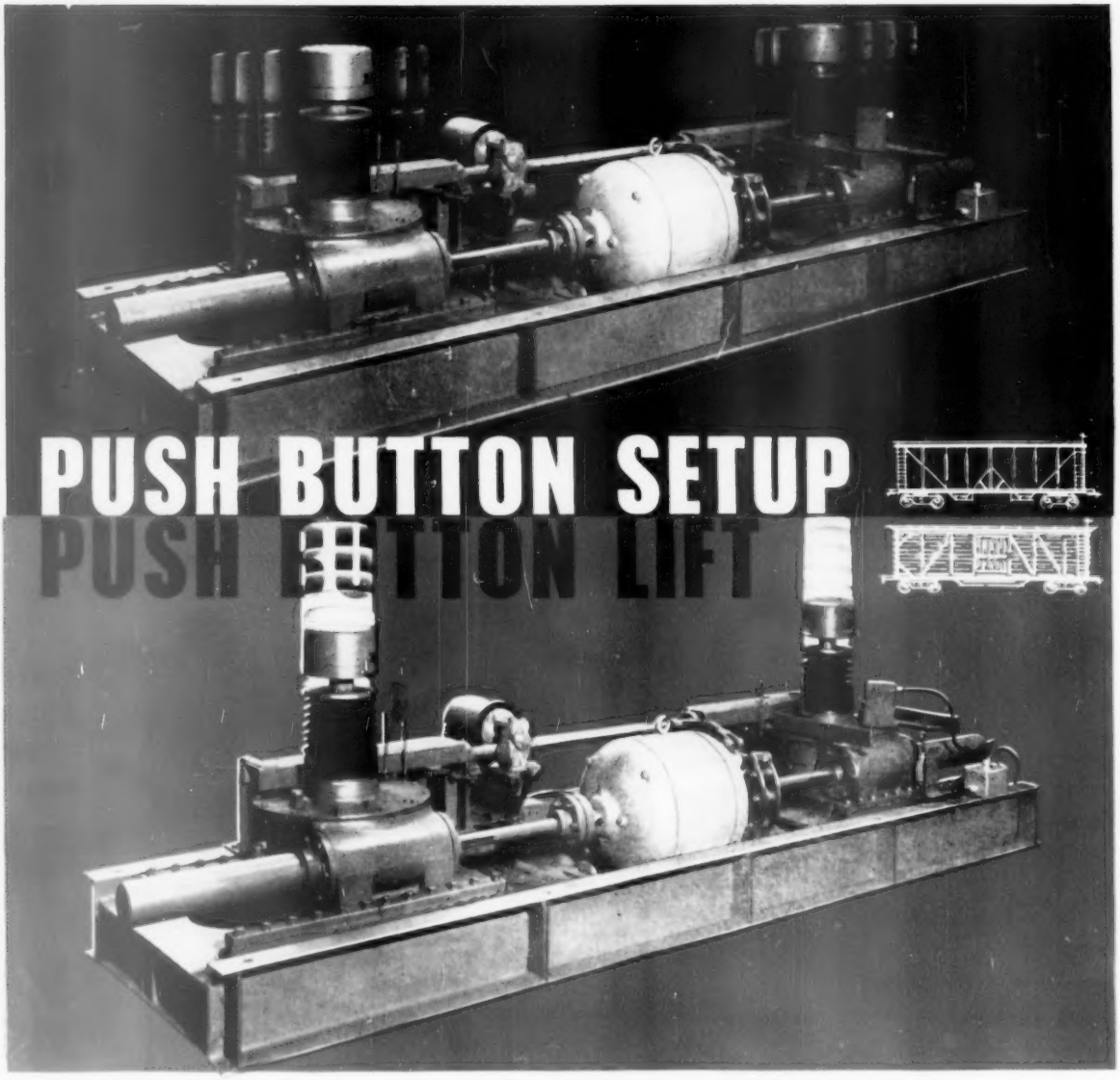

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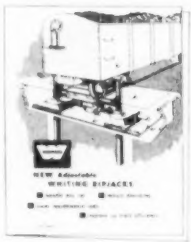

FREE BOOKLET . . . Describes cost-cutting combination; Ripjack speeding car maintenance, Whiting Trackmobile—which runs on rail *or* road—speeding car movement. Write for Bulletin RJ-C-100. *Whiting Corporation, 15603 Lathrop Avenue, Harvey, Illinois.*

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RAILWAY AGE *weekly* December 7, 1959 • Vol. 147, No. 23

Week at a Glance

Departments

Federal aid for commuters? ..... p. 9

A committee of mayors and railroad presidents has agreed on a four-point program asking Congress to (1) formulate a national policy for a balanced, coordinated transportation system, (2) seek "rational tax policies" for the railroads, (3) authorize federal loans to municipalities to improve mass transportation facilities, and (4) "study" the possibility of federal grants-in-aid to cities with major commuter problems.

Cover Story—Electronic computers p.13

Today's big computers are having a profound impact on railroad operations and management. Their real potential, however, has hardly been tapped. Here's a special report on what computers have done already, and the promise they hold for the future.

Cover Story—Pushbutton car cleaning pays off p.26

The cars get cleaned faster and at less cost, says the Great Northern. The facility—at the road's Delta yard, in Everett, Wash.—will be duplicated next year on the GN's eastern lines.

Hotbox 'task force' proposed p.31

The "disappointing progress toward reducing hotboxes" indicates the need for a task force approach to the problem, in the view of Ward N. Messimer, retired manager-equipment of Merchants Despatch Transportation and Northern Refrigerator Line.

NYC speeds Boston-Midwest service p.32

Changes announced last week trim up to five hours from scheduled running time. New York Central has also improved Flexi-Van schedules between New York and Chicago. A spokesman says the changes indicate the road's determination to use its "prime service route to the fullest advantage."

Labor's share 'alarming' p.39

The amount of railroad earnings going to labor has increased while the amount available for capital has shrunk—a trend which the Railroad Securities Committee of the Investment Bankers Association of America views as "a serious threat" to the industry's future.

The Action Page—Bigger jobs for computers p.42

Electronic data processing is being tested to see whether

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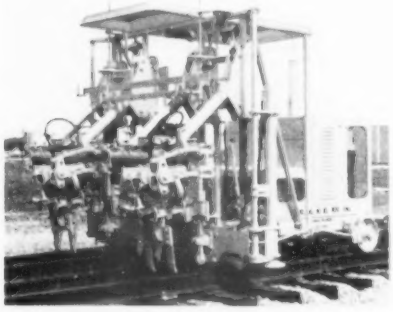

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Get the facts concerning these machines and you will recommend them with assurance.

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LUDINGTON, MICHIGAN

Week at a Glance CONT

Current Statistics

Operating revenues	
9 mos., 1959	$7,391,129,587
9 mos., 1958	7,013,191,462
Operating expenses	
9 mos., 1959	5,807,048,048
9 mos., 1958	5,613,195,989
Taxes	
9 mos., 1959	792,949,896
9 mos., 1958	685,984,463
Net railway operating income	
9 mos., 1959	548,669,818
9 mos., 1958	448,671,909
Net income estimated	
9 mos., 1959	393,000,000
9 mos., 1958	353,000,000
Average price railroad stocks	
Dec. 1, 1959	102.21
Dec. 2, 1958	102.86
Carloadings, revenue freight	
47 wks., '59	28,040,784
47 wks., '58	27,499,189
Freight cars on order	
Nov. 1, 1959	36,199
Nov. 1, 1958	23,670
Freight cars delivered	
10 mos., 1959	32,063
10 mos., 1958	36,255

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it will permit railroads to propose freight rates which will improve traffic and earnings. If it can be so used, the technique undoubtedly will be applied to even more complex areas of railroading.

Short and Significant

A new $1,000,000 rail-water transfer facility . . .

may be built by Chicago & Eastern Illinois on the Ohio River near Mt. Vernon, Ind. The transfer would handle coal and other bulk commodities, and would eventually replace existing coal transfer facilities at Mt. Vernon. C&EI sees "tremendous potential" in a two-way rail haul between the Ohio and the Chicago market.

Government guaranty of a $5,923,000 loan . . .

to the Lehigh Valley has been approved by the ICC. Proceeds will be used to reimburse the road's treasury for expenditures for additions and betterments. Participants in the loan are three banks and three insurance companies.

A new car reporting center . . .

went into operation Dec. 1 at the Milwaukee's offices in Chicago Union Station. Called Car-Scope, it will keep tab on all railroad traffic, will also maintain a record of the location of special-purpose freight cars, loaded or empty. Among the functions of the bureau: tracing and expediting carlot shipments, handling diversions and reconsignments, furnishing information to shippers and receivers when movements are delayed. All such services were provided previously, but through separate departments.

Railroad piggyback rates . . .

should be higher than competing truck-water rates in instances where participating truckers and water carriers are the low-cost carriers, and the piggyback rates are below fully-distributed costs of that service. That's what Examiner Charles E. Morgan has advised the ICC in a proposed report in I&S No. 6834 and related cases which involve suspended railroad tariffs proposing reduced rates for piggyback service on various commodities between points in official territory and Dallas and Fort Worth, Tex.

The proposed railroad rates . . .

are on about the same bases as sea-land rates maintained by Pan-Atlantic Steamship Corp. and Seatrain Lines. The examiner found that the sea-land service provided by Pan-Atlantic is generally a lower-cost operation than the proposed railroad piggyback service.

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Federal Aid for Commuters?

► The Story at a Glance: The next Congress may be asked to consider administering a dose of federal aid to cure the mass transportation ailments of major cities.

A committee of mayors and railroad presidents agreed last week on a program calling for:

- **A national policy for "a balanced and coordinated transportation system."**
- **"Rational tax policies."**
- **Federal loans—where necessary—to help municipalities buy new commuter equipment, modernize mass transport facilities.**
- **A "study" of federal grants-in-aid to communities to improve commutation or other intracity transport facilities.**

Federal aid of substantial proportions may be one solution to metropolitan commuter problems—but any such aid will go not to the railroads, but to municipalities whose economic well-being depends on mass transport.

That was the overriding idea that emerged from last week's meeting of mayors and commuter road chief executives in Denver. After a debate during which the western roads reiterated their firm anti-subsidy stand—and the eastern roads insisted that some form of aid was essential—they agreed on a four-point program (drawn up by the mayors) for possible submission to Congress *(see box)*.

On the fourth point, the eastern roads, generally, favored an outright request for federal grants. While opposed to any outright request for grants, President Clair M. Roddewig of the Association of Western Railways agreed to join in asking for a "study" of such grants to communities or duly constituted bodies.

Mr. Roddewig later commented, with reference to the joint statement issued in Denver:

"The statement doesn't approve any federal subsidy for commuter service. It doesn't approve any government loans to railroads for commuter equipment. The Chicago commuter roads are still opposed to subsidy in any form for transportation. We think the statement is constructive to the extent it calls for national policy to be established for a balanced and coordinated transportation system and it calls for rational tax policies for the railroads by the federal, state and local governments. I want to specifically point out that the statement doesn't commit the American railroad industry to any position; those from the railroad industry in attendance at the meeting merely agreed to submit it to the board of directors of the AAR for consideration."

Railroads represented at the meeting included the New York Central, New Haven, Pennsylvania, and Erie. The AWR represented the western roads. Participating cities were New York, Philadelphia, Washington, Cleveland, Chicago, St. Louis and Milwaukee.

The meeting was an outgrowth of action initiated early this year by James M. Symes, then president (now chairman) of the Pennsylvania, and Philadelphia Mayor Richardson Dilworth. They called the mayors of 11 cities and the chief executives of 16 railroads together in Chicago last Jan. 13 to consider the commuter problem (RA, Jan. 12, p. 10). This meeting led to the creation of a joint study committee of railroad officers and city officials. It was this committee that met last week in conjunction with the American Municipal Congress in Denver. Appropriately, the theme of this year's congress was "Transportation."

The committee's statement outlining the four-point program was later approved by the Municipal Congress, with only scattered opposition from the South and Midwest.

As far as the railroads are concerned, the program is subject to the approval of the Association of American Railroads. It is expected to be considered by the AAR board in January.

Other Remedies

Possible solution to the problem in some cities—dual-purpose expressways to provide both rail transit and auto facilities—came in for extended discussion at the mayors' meeting. A number of cities showed interest, and there were indications that several cities might build highways of this sort—if the federal Interstate Highway System would allocate funds for this purpose.

Chicago, which has the only such highway in operation in the country in its Congress Street Expressway, has had assistance from Interstate Highway System funds in financing the expressway. But a representative of the Bureau of Public Roads told the mayors that there is no fixed government policy on providing money from the interstate highway program for dual-purpose highways and that

Joint statement of mayors and railroad presidents:

"We believe that four steps should be taken immediately by the Congress of the United States toward the solution of this problem which is so vital to the nation as a whole:

"1) That a national policy should be established by the Congress for a balanced and coordinated transportation system.

"2) That the federal, state and local governments be asked to develop rational tax policies for the railroads.

"3) That federal loans be made available where necessary to municipalities or publicly constituted bodies for new commuter equipment and improved facilities and for the improvement of intracity mass passenger transportation facilities; these to be long-term, low-interest loans.

"4) That a study be made of grants-in-aid by the federal government to communities or duly constituted public bodies which have a sound plan for the permanent improvement of commutation or other intracity transportation facilities, this to be modeled on the present urban renewal program."

future applications would be judged on the merits of each case.

Any future expressways approved for Interstate Highway System aid would presumably have costs apportioned 90% to the federal government and 10% to the city and state, as in other parts of the interstate highway program.

The Chicago Transit Authority has noted of its experience with the Congress Street Expressway: "Integrating rail rapid transit with a grade-separated expressway increases passenger-carrying capacity as much as threefold or more, at only a fraction additional cost . . . A cost ratio of one-fifth for transit to four-fifths for expressway facilities is possible under favorable circumstances . . . Chicago is now committed to the principle of combining rapid transit, rail or bus, with grade-separated multi-lane expressways programmed for the immediate future."

Other approaches to the problem, either in effect or pending, were also discussed. Philadelphia, where an experiment in increasing rail ridership by lowering fares and improving service has been in effect for more than a year, had some solid figures to talk about at the mayors' conference.

These showed that the city, which had as its goal preservation of its downtown area by relieving auto congestion, had gotten pretty much what it wanted. People are leaving their cars at home and going downtown by train.

The figures also showed that the railroads involved—PRR and Reading—lost heavily in providing the improved service. In spite of a city contribution supposed to cover added costs (RA, Sept. 14, p. 56) Reading Comptroller Byron C. Cassel stated at an earlier meeting that the Reading subsidized the estimated 1,624,900 riders during the first year of "Operation Northwest" at the rate of 48 cents a ride for a total cost of nearly $800,000. During this period a 19% increase in riders was reported. The Reading comptroller said that it would take an increase of 17,000 riders a day on the Chestnut Hill line, instead of the present average increase of 1,057 daily, to cover the Reading's increased cost through additional volume.

In New York, meanwhile, progress on Governor Rockefeller's commuter-relief plan (RA, Oct. 5, p. 35) has been slow. There are indications that one or more of the three railroads eligible to obtain new commuter equipment to be partly financed by the Port of New York Authority are unhappy about the size of carrying charges involved in the present version of the plan. Unless the Port Authority comes up with a plan that would give the railroads more liberal terms, it is conceivable that only the Long Island (which as a New York State Redevelopment Corporation has a different financial structure from the other roads) would be in a position to benefit.

New Orleans to Host ARDA's 1960 Convention

New Orleans will be host city for the 1960 convention of the American Railway Development Association (April 25-27 at the Hotel Monteleone). ARDA originally scheduled the '60 meeting for San Francisco, then switched plans when association officers were unable to obtain relief on pass restrictions imposed by some roads over which members and their wives would be traveling.

Watching Washington *with Walter Taft*

• **SKIMMING THE CREAM** of traffic is still a trucker habit. That's pointed up again by figures indicating that the for-hire truckers' ton-mile "take" last year was more than four times the rail average. The ICC's Bureau of Transport Economics and Statistics calculates that common and contract truckers then got a weighted average of 6.13 cents per ton-mile while railroads were collecting only 23.9% as much—1.46 cents.

OPPORTUNITY knocking on railroad doors is what this spread is called by many students of the rate structure. They have in mind the truckers' vulnerability to tailored rate making of the type adopted by eastern railroads and approved by the ICC in the celebrated paint case.

• **PRIVATE OPERATION** under government controls is still the Office of Civil and Defense Mobilization's idea of what should be done about domestic transportation in an emergency. The idea has now been set out formally in a 16-page document which is Annex 34 to The National Plan for Civil Defense and Defense Mobilization.

EXECUTION of the transport plan will involve ICC control over rail, highway and domestic water carriers. Some time ago, OCDM and the Commission prepared several standby control orders. These have been distributed to the carriers for immediate implementation in the event of declaration of a national civil defense emergency.

• **THERE'S TALK** of Congressional intervention in the railroad industry's "featherbedding" controversy. Senator Wiley of Wisconsin suggests that "it may become the duty of Congress to hold hearings in order to determine the facts"—if the White House "remains unwilling" to get involved. This unwillingness was expressed by President Eisenhower some time ago as he rejected management's proposal for appointment of a special Presidential commission to study the matter.

• **"SLOW ORDER"** on Lackawanna-Erie merger has been issued by the ICC. The order denies a request whereby those roads sought to have the case expedited by omission of an examiner's proposed report. The request was opposed by the Nickel Plate and Wabash and the Railway Labor Executives' Association.

• **THE 1960 CHAIRMAN OF ICC** will be Commissioner John H. Winchell. Under the plan of rotation, he will take over Jan. 1 as successor to Kenneth H. Tuggle, who will remain a member of the Commission. A former member of the Public Utilities Commission of Colorado, Mr. Winchell has been a member of the ICC since 1954.

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The cast steel ends:

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Reduce maintenance
Increase car life
Resist rust and corrosion

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"Roller Freight" growth is breaking all previous records. Just since January 1, over 21,000 freight cars have been ordered equipped with Timken bearings. These cars boost the total on Timken bearings in service or on order to almost 47,000. And there are 87 railroads and private car owners now using Timken bearing-equipped freight cars. Big reasons why "Roller Freight" is growing at a rapid rate are:

1) *Speedier, better service for shippers.* Timken bearings eliminate the hot box problem—No. 1 cause of freight train delays. Timken bearings average 103 million car-miles between overheated bearings. They *roll* the load, don't slide it as friction bearings do. And Timken bearings speed shipments through terminals because they cut terminal bearing inspection time 90%.

2) *Reduced operating and maintenance costs for railroads.* Timken "AP" heavy-duty journal bearing assemblies are precision-engineered to give trouble-free service. And they will go 4 years without adding lubricant.

When all freight is "Roller Freight", the railroads will save an estimated $288,000,000 a year in operating and maintenance costs. And freight service will be faster, more dependable than ever. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steels and Removable Rock Bits.*

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MEMO TO MANAGEMENT:

COMPUTERS SHARPEN CONTROLS

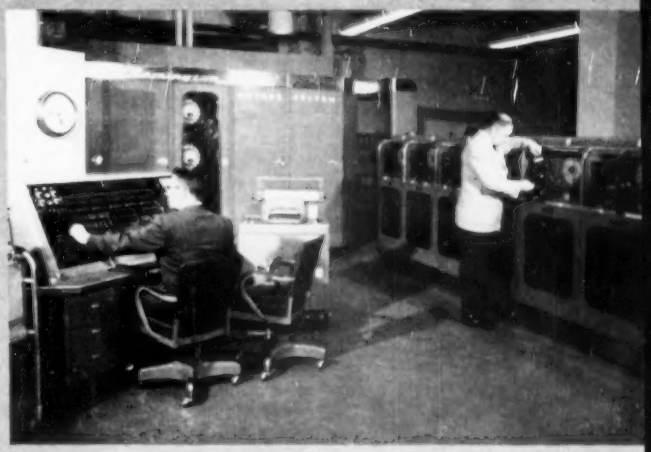
Electronic data processing is having a profound impact on railroad operations and management. The power behind EDP is the digital business computer, popularly known as the "electronic brain." The following pages present a special report on the effect of the computer on railroad operations, particularly in these areas of management control:

- **Distribution and utilization of cars and equipment**
- **Financial planning**
- **Materials inventory and distribution**
- **Marketing**

The greatest single contribution of the computer is in revolutionizing the thinking of officers and executives about management controls and railroad operation. This new concept of the *total problem* or *total operation* results from the computer's ability to produce management control information. Heretofore, such information was impossible or too expensive to develop. Now it is available from a computer in a few hours. A computer, for example, can simulate train operations over centralized traffic control territory. The proposed handling of railroad problems or operations can be "tested" on a computer before putting them into practice.

The real potential of EDP and computers has hardly been tapped. In the broadest sense, the future holds promise of better planned, costed-for-profit freight service; of new insight in providing realistic and reliable schedules for competitive purposes; of fuller utilization of all types of railroad equipment and the total employment of financial resources.

By Robert W. McKnight
Signal & Communications Editor—Railway Age
Editor—Railway Signaling & Communications



How Railroads Use Computers

Large and intermediate-scale computers have been in use on railroads for only a few years. During this period *most* of the work they have done is more or less routine paperwork. By and large the computer has paid for itself in reducing the cost of such work. Perhaps more important for the long pull, this period of programming the routine has familiarized railroaders with both the workings of the computer and its capabilities. Some roads have gone beyond the routine paperwork stage into more dramatic and probably more profitable work.

Certainly a computer can do much more than paperwork alone. Improving management controls is, in fact, probably the most important computer function. To do so, a computer can provide information otherwise unattainable or too expensive to obtain by former methods. A part of this information function, for example, is computer simulation of railroad operations. Simulation enables management to *test* possible solutions to a problem before putting them into operation.

What follows are some examples of how railroads are using computers. This by no means covers the field.

A western railroad installed a computer to provide complete weight information at one of its iron ore docks. Speeding up the weighing process and other paper work has made it possible for the railroad to advise the shipper (mining company) quickly how much of a required grade of ore is on hand at the docks. Consequently, the shipper can quickly make up any deficiencies in an order. This reduces ship waiting times.

Here's how the system operates: As cars of iron ore pass over a scale, the operator enters information into the computer by pushbuttons. He inserts car initial and mine waybill number. The scale feeds the gross weight into the computer, which then calculates the weight of ore per car and each run of cars in a mine waybill. Formerly, such calculations were determined manually by the scale operator. Now the computer and scale working together can weigh and process five to six cars per minute.

Data emerges from the computer via a punched tape. This is processed and information sent to the mining companies and the railroad's ore docks. Such speed is important. As soon as the mines receive a record of weights shipped, they can determine whether additional ore will be necessary to complete the loading of a ship. Guesswork is eliminated from the job of providing different grades of ore in correct amounts to meet steel mill requirements. As a result, mining companies have improved their customer relations. For the railroad, quick production of weight information eases the old problem of "preference" ore— ore which the railroad is called upon to rush to the docks to finish loading a vessel. In case more than enough ore has already been dispatched to the docks, the railroad will avoid over-dumping, with the consequent tying up of dock space.

'Brain' Remembers 55,000 Items

A midwestern railroad is automating its P&S procedures around a memory storage type of digital business computer. Current information on inventory control and accounting is available on a daily, rather than on the conventional monthly, basis. The automated system reduces inventories, but stock items are not exhausted before being replenished by computerized reordering processes. Aside from savings due to reduced inventories, the railroad estimates there are additional 15% to 25% savings representing such hidden costs of P&S operations as obsolescence, insurance, deterioration, handling, storage and theft. Also, the efficiency of P&S operations is improved.

This road's purchasing officer reports that the new system furnishes a perpetual record of the amount of money the company owes for materials and supplies purchased, delivered or due for delivery. It automatically prepares vouchers and drafts on dates due, thus

improving the cash flow.

When "asked," the computer can instantly provide the unit price of each of about 55,000 items listed in the stores catalog. Many other financial details are available upon interrogation: the system quantity of each item on hand; current usage of each item at each location; lead time for ordering each item; dollar values in terms of classes of material in hand, issued or returned, and transferred from one location to another. The computer can search its entire file to uncover surplus material conditions at store points. When such surplus conditions are disclosed, it will automatically initiate transfer of such material when necessary.

Annual inventory will be simply a matter of mark-sensing item cards and feeding them into the file computer. This will be to double check the perpetual figures carried by the machine.

Two eastern railroads, in a joint project, used computer techniques in a market study of shipments from a medium-size city. An objective was to find the traffic flow by type of transportation—rail or truck. The railroads obtained information from over 25 companies manufacturing diverse products. The industries reported the number of shipments made during the sample month, the weight of each shipment, and the distance each traveled.

Computer techniques were used, because of the large amount of data to be handled. One of the roads wanted the information to try to recapture traffic that moved by truck. The railroad needed information quickly. The road has since been engaged in a broad rate and service study, based on the computer data, designed to recapture as much of the traffic as it can.

Study results, incidentally, indicated that trucks moved about 83% of shipments made during the sample month. And more important, a method was established by which all railroads can make traffic flow studies.

Simulated Train Operation

In still another area of computer application, a workable program has been developed for simulating single track operation in centralized traffic control territory. Using an electronic digital computer, this program (instructions to the computer) can handle up to 10 trains at a time over a 100-150-mile section of railroad. As each train's run is completed, another train may be added. Ten trains can be computed over the road in about 1 hr 40 min.

The computed information is of considerable assistance in planning the track and signal layouts for CTC. New data for a complete change in track and signal layout may be prepared from blueprints in half a day. Train data, such as motive power, departing times and station stops, may be changed in a few minutes.

The advantage of computer simulation is that changes in the signal system, track layout, motive power scheduling, and similar problems can be tried out without incurring the expense or inconvenience of modifying the real physical plant. The best arrangement can be found, and expensive wrong decisions eliminated, before actual changes are introduced. As much as two to three years of experience can be condensed into a few hours' computer time.

Computer Tells Train Performance

An eastern railroad is using a digital computer to calculate: (1) train performance, (2) fuel or electrical energy consumption, and (3) locomotive tonnage ratings. The computer cuts the time required in figuring tonnage ratings by 80%. It also determines train schedules possible where given tonnages are to be hauled by a train with a given motive power. Chief advantage of such calculations is to permit the economical assignment of motive power to freight or passenger trains.

For example, the assignment of additional motive power to a train might decrease running time between given points. The computer helps determine whether or not this assignment will be economical in terms of the time that might be saved. Factors included in the calculations are: grades, curves and distances; speed restrictions; weight and tractive resistance of the train; tractive force of the motive power; rate of deceleration during braking; and the number, location and duration of station stops.

Train performance is calculated at rates varying between 700 and 2,000 miles of track per hour, depending upon the number of station stops, speed restrictions and grades. Tonnage rating calculations on the digital computer require from one to five minutes per locomotive group, depending upon the length of track involved and degree of accuracy required. A tolerance of zero to minus 3% of the exact rating has been found acceptable. Using an analog train performance calculator for the same job requires one-man-day. To do the same work with slide rule and desk calculator, the time required would be prohibitive.

A western railroad, in a program now temporarily shelved, used a computer for providing information on better distribution of empty box cars. It plans to handle this work on a new, larger computer to be delivered in 1960.

One of the first factors needed in the road's car distribution study was to find the level of loading and unloading activity on each division. Also required was information about empty cars on hand on each division; receipts and deliveries to and from connections of loads and empties; time delays involved for each division in each of the various types of moves (spotting of empty cars, for example); and the combination of moves which would best meet the needs of each division while minimizing cross haul and empty mileage.

The railroad developed a 7 a.m. yard check report—showing number of box cars on hand loaded and in possession of the railroad; cars on shippers' and receivers' tracks; and empty cars in possession of the railroad. This information and the road's car movement records, were required to establish the inventory level on each division.

A mathematical model of the railroad was constructed, showing conditions on each division. This model showed clearly that down-grading of cars represents no direct cost; upgrading of cars does generate cost; and, of course, moving cars from one division to another does generate crew, fuel and other direct costs.

Computer Processes Data

From this model, the railroad was able to establish both a system for estimating the actions which would have to be taken to bring about a given car supply on any division, and the approximate cost of such actions.

A computer was used to process the data to produce the best distribution plan. Fed into the computer were: (1) data from wheel and interchange reports, showing station-to-station moves of each empty box car, and receipt or delivery in interchange of each such car; and (2) loading and unloading reports, which show each car spotted empty on a shipper's tracks to load, or released empty by a shipper after unloading. With this data reduced, inventory updating, activity forecasts for the divisions and time standards for each type of movement involved, are introduced into the equation.

The computer, operating at high speeds, found the best program possible. (The approximate cost of every car movement involved was known.) Essentially, according to the railroad, the computer took all possible combinations of actions, weighed the consequences of each such combination, and eventually came up with the answer which struck the best balance between costs and service for the whole railroad.

High-Capacity Circuits Required

The physical layout of a railroad requires an extensive communications network for efficient operation. Railroads have such basic networks today. Computers with their attendant equipment require vast amounts of information from all over the railroad. This puts a burden on the communications system. This high-capacity requirement is receiving increased attention from railroad communications officers.

Basic to most railroads' communications systems has been the printing telegraph. Almost all systems operate at 60 words per minute, with some 75 wpm circuits in service. One midwestern railroad has installed printer equipment operating at 600 wpm to handle car report information between the general telegraph office and a data processing center.

With the growth of punch card usage, interest in card-to-card transmission developed. This is accomplished by the data transceiver, which operates over telegraph or telephone circuits. Present capacity is 10-15 cards per minute, but a new development promises card rates up to 100 per minute. A western railroad's experience is that punch card-to-tape transmission techniques "are just too slow." This road is planning an extensive microwave system to provide the circuits for card-to-card transmission.

Going one step farther, another western railroad is planning a 700-mile microwave system to handle facsimile and other communications. This road plans to use facsimile to transmit waybill information from yards to a central data processing headquarters. There, clerks will use facsimile waybills to produce punch cards with the pertinent information for computer processing. Microwave was chosen because it can provide the 250-kilocycle bandwidth required for facsimile.

At present, however, most railroads are handling data transmission over pole line facilities. This is possible by the extensive use of carrier equipment on existing line wires. However, some railroad communications officers believe that microwave, with its greater circuit capacity, will be required for data transmission. Existing railroad microwave systems total 1,272 miles on eight railroads. Microwave systems on three railroads, totaling 2,026 miles, are either in the advanced planning stage or under actual construction. Three other big roads are considering microwave systems that would total about 2,500 miles.

In addition to data transmission, microwave systems will handle telephone, printing telegraph and other communications, as do pole lines. As to circuit capacities, microwave has greater capacity than a pole line.

Where to Buy — Data Transmission Equipment

Alden Electronic & Impulse Recording Co.
Westboro, Mass.
(Facsimile)

American Telephone & Telegraph Co.
195 Broadway, New York 7, N. Y.
(Data transmission facilities)

Automatic Electric Sales Co.
Northlake, Ill.
(Carrier, microwave)

Buckeye Telephone & Supply Co.
1250 Kinnear Road, Columbus 21, Ohio
(Carrier, microwave)

Collins Radio Co.
315 Second Ave., Cedar Rapids, Iowa
(High speed data transmission system)

Communications Equipment & Engineering Co.
5646 W. Race St., Chicago 44, Ill.
(Carrier)

Creed & Co. Ltd.
Telegraph House, Croydon, England
(Teleprinters and punched tape equipment)

Dage Television Div.,
Thompson Ramo Wooldridge, Inc.
West Tenth St., Michigan City, Ind.
(Closed circuit television)

Dick Co., A.B.
5700 W. Touhy Ave., Chicago 43, Ill.
(Facsimile, high-speed printer)

Electronic Communications, Inc.
1501—72nd St., N., St. Petersburg, Fla.
(Facsimile, microwave)

Flexowriter Div.,
Friden Calculating Machine Co.
San Leandro, Calif.
(Tape transmitter-receiver equipment)

General Electric Co.,
Communications Products Dept.
Lynchburg, Va.
(Microwave, carrier)

International Telephone & Telegraph Co.
67 Broad St., New York 4, N. Y.
(Industrial television, microwave)

Kellogg Switchboard & Supply Co.
6650 S. Cicero Ave., Chicago 38, Ill.
(Carrier, microwave)

Kleinschmidt Div.,
Smith-Corona Marchant, Inc.
Deerfield, Ill.
(Teletypewriters)

Lynch Carrier Systems, Inc.
695 Bryant St., San Francisco 7, Calif.
(Carrier)

Motorola Communications
& Electronics, Inc.
4501 W. Augusta Blvd., Chicago 51, Ill.
(Microwave)

Muirhead Instruments, Inc.
677 Fifth Ave., New York 22, N. Y.
(Facsimile)

Nippon Electric Co. Ltd.
Tokyo, Japan
(Microwave)

North Electric Co.
553 S. Market St., Galion, Ohio
(Carrier)

Northern Radio Co.
147 West 22nd St., New York 11, N. Y.
(Carrier)

Philco Corp., Government & Industrial Div
4700 Wissahickon Ave., Philadelphia 44, Pa.
(Microwave, industrial television)

Radio Corp. of America
Front and Cooper Sts., Camden 2, N. J.
(Microwave, industrial television)

Radio Engineering Products, Ltd.
1080 University St., Montreal 3, Que.
(Carrier)

Radio Frequency Laboratories, Inc.
Powerville Road, Boonton, N. J.
(Carrier)

Raytheon Co.
Waltham 54, Mass.
(Microwave)

Stromberg-Carlson Div., General Dynamics
Corp., Telecommunication Industrial Sales
126 Carlson Road, Rochester 3, N. Y.
(Carrier, microwave, high-speed printer)

Stromberg Time Corp.
Thomaston, Conn.
(Automatic data gathering system)

Systematics Inc.
10 East 40th St., New York 16, N. Y.
(Card-to-card transmission equipment)

Telautograph Corp.
8700 Bellanca Ave., Los Angeles 45, Calif.
(Telescriber remote writing, closed circuit TV)

Teletype Corp.
4100 W. Fullerton Ave., Chicago 11, Ill.
(Printing telegraph equipment)

Times Facsimile Corp.
540 West 58th St., New York 19, N. Y.
(Facsimile)

Weinschel Engineering Co.
10503 Metropolitan Ave., Kensington, Md.
(Microwave)

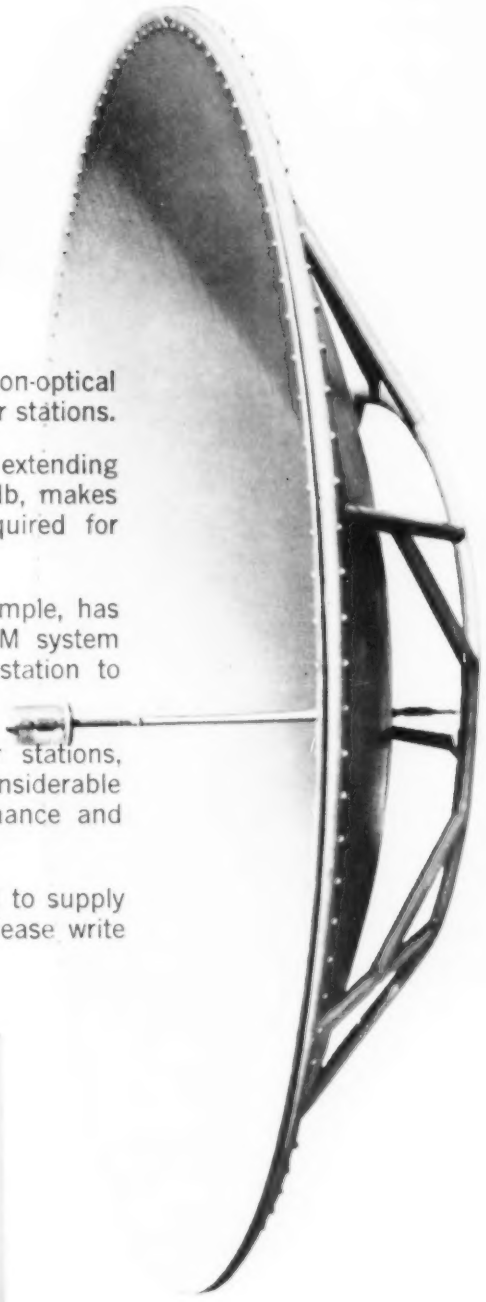
Western Union Telegraph Co.
60 Hudson St., New York 13, N. Y.
(Facsimile, data transmission facilities)

Westinghouse Electric Corp.,
Power Control & Communications Dept.
East Pittsburgh, Pa.
(Microwave)

New from Japan . . .

Important advance in short-haul, multi-channel communications

Microwave trunk circuits without repeater stations



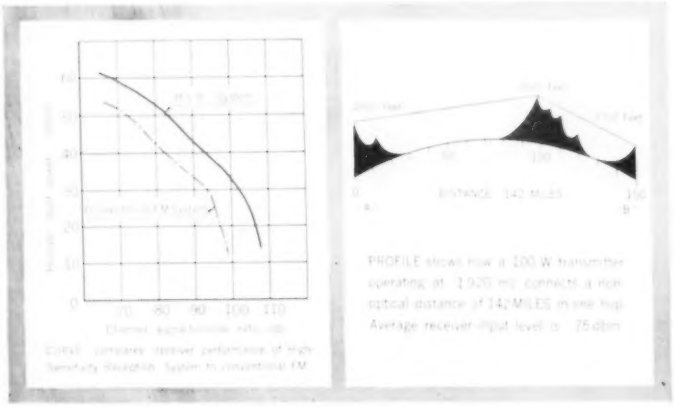
Microwave 60-channel voice transmission over a non-optical path up to 300 miles is now possible without repeater stations.

NEC's High Sensitivity Reception System, by extending threshold level and improving S/N ratio 10 to 13 db, makes this hop with only 1/20 of the power output required for conventional systems.

A 100 W transmitter in the 1,800-mc band, for example, has a scatter path of 100-150 miles. A conventional FM system requires 2 KW output and at least one repeater station to connect the same distance over a non-optical path.

By eliminating high-power amplifiers and repeater stations, the High Sensitivity Reception System results in considerable reduction in initial investment. Savings in maintenance and power consumption are estimated at 40% or more.

After many propagation tests, NEC is now prepared to supply railways and other users anywhere in the world. Please write for detailed information.



PROFILE shows how a 100 W transmitter operating at 1,920 mc connects a non-optical distance of 142 MILES in one hop. Average receiver input level is -75 dBm.

NEC *Nippon Electric Company Ltd.*
Tokyo, Japan

Electronics Communications Systems

Equipment, Operations and

Equipment: The trend is toward large computers at data processing headquarters or service bureaus. Railroads have found it to be more efficient to centralize data processing. Many roads have outgrown their earlier, small size computers. They are turning to newer models with larger memory storage, sorting and data handling capacity. These later-model computers also are capable of processing data more quickly than older models.

The two basic computer input forms are punch cards and magnetic tape. Most railroads use magnetic tape input to large computers. (They use converters to put the punch card information on the magnetic tape.) Magnetic tape input is much faster. "It just isn't good economics to take a large computer and feed it information, a punch card at a time," says a railroad methods engineer. Those railroads with medium and small size computers have found punch card input satisfactory and economical.

Computer output may be magnetic tape or punch cards. Another factor enters into computer output—that is speed and form. Most railroads desire output in printed form, such as passing reports, traffic and revenue statistics or payroll and dividend checks. At the present time, 600 and 900 line-a-minute printers are available. This is too slow, some railroad men contend. But this may be only temporary, as prototype high-speed printers have been built capable of 5,000 lines a minute.

Installation: Major factors to be considered are: (1) space requirements; (2) floor loadings; (3) power requirements; (4) air conditioning; (5) acoustics; and (6) lighting. One railroad spent about $110,000 remodeling a part of its office building to house a new digital computer.

And this is how the $110,000 was spent:

Control and power cables, accessible for testing and maintenance, must be run under the floor between the various machines. The railroad constructed a "raised floor" supported on concrete pedestals on the reinforced concrete floor of the computer office. This raised floor is of composition tile, and is kept clean by damp mopping.

Power requirements should be carefully considered, not only for the computer, but for the air-conditioning equipment.

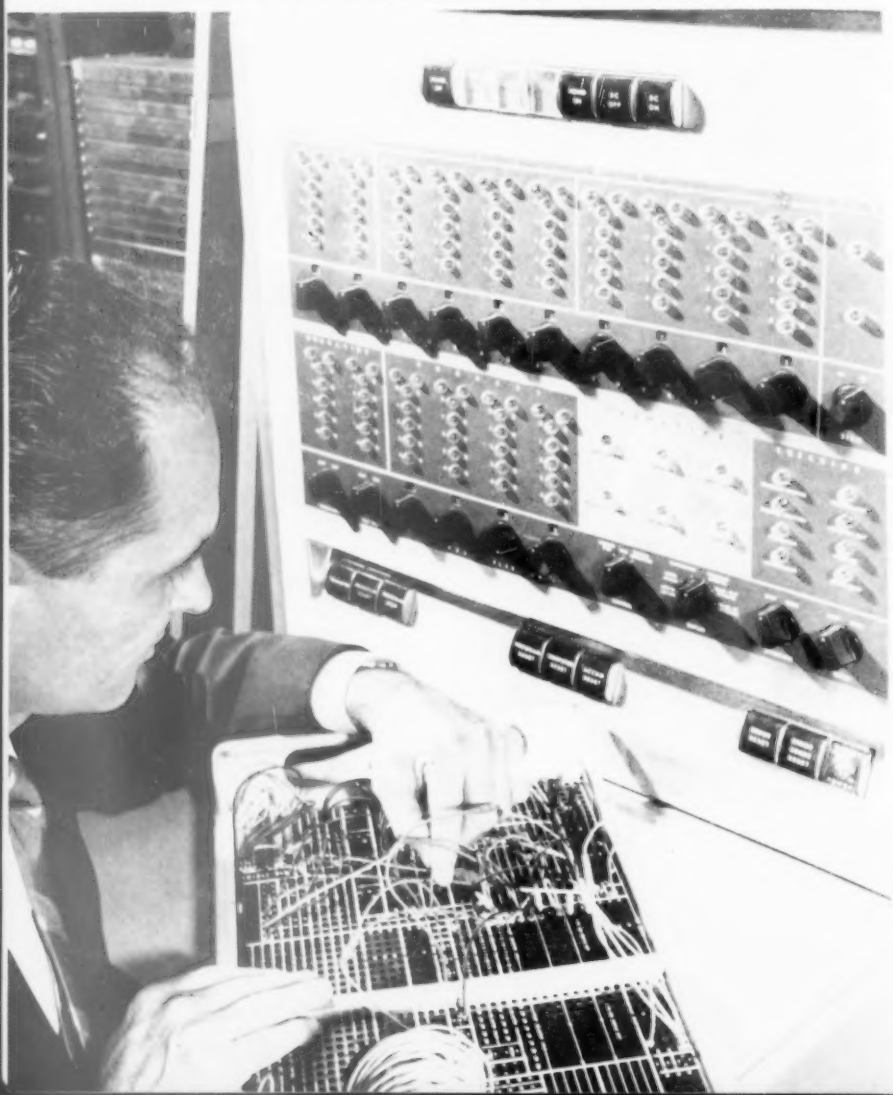
The computer will operate only when the temperature is 72-80 deg F. The ideal temperature is 75 deg F., and the relative humidity must be kept between 40 and 60%.

Dust control is very important in a computer office. The filter bank should be able to extract 90% of dust particles over one micron in size.

If it takes 18 months for delivery of a computer, planning of space and housing requirements should begin 12 months in advance of delivery date. Allow 10 months for construction work, shooting toward the goal of four months before delivery for agreement on the final delivery of the equipment.

Transistor computers do not generate heat as do vacuum-tube-type computers. Dust and humidity control is required for transistor computers, but air conditioning requirements are lower than for vacuum-tube-type computers. One manufacturer comments: "With our transistor computer, the only air conditioning required is that to make it comfortable for the operators." Another advantage of the transistor computer is its lower power consumption. Many such computers operate on 220 volts ac (the same as that for an electric stove).

PANEL WIRING is an integral part of computer functioning.



Installation

Operation: Railroad management, employees and union officials realize that computer installations may result temporarily in fewer jobs. But for those that remain, it means equal or higher ratings and pay. On all roads, normal attrition has taken care of a large part of the jobs abolished by computer installations.

Agreements With Clerks

Several agreements have been signed between the Brotherhood of Railway Clerks and railroads covering persons involved in the changeover to computer operations. These agreements include provisions for training, the class and type of work to be performed, rates of pay and seniority.

Although seniority ranks high, men of lower seniority but with special skills and aptitudes are often brought into data processing centers. One road's agreement with the union covered paying these men their salaries and living expenses while they attended a computer manufacturer's training programs.

Introduction of a computer usually requires expanded employee training programs. One railroad personnel officer points out that an additional benefit of the computer, therefore, has been to heighten management opinion of the value of training programs generally.

Not only have roads trained their own employees to work at computer headquarters, but many have trained men in data processing techniques who return to their jobs to work out departmental programs for computer operation. One railroad officer says: "Selling, training or educating everyone about computers is really one and the same thing. It's a big education job."

Down or maintenance time varies with computer usage. Railroads agree with the manufacturers that a computer should be checked at least once every 24 hours. Maintenance and check problem running may take only one or two hours initially, but when railroads work up to 16-hours computer usage, the remaining 8 hours is required down time.

Most railroads lease their large computers because they do not want to tie up a large amount of capital. Also, they can more readily take advantage of technological progress by changing over to newer equipment.

Where to Buy—Data Processing Equipment

Bendix Aviation Corp., Computer Div.
5630 Arbor Vitae St., Los Angeles 45, Calif.
(Computer)

Burroughs Corp., Electrodata Div.
460 Sierra Madre Villa, Pasadena, Calif.
(Computer)

Control Data Corp.
501 Park Ave., Minneapolis 15, Minn.
(Computer)

Datamatic Div.,
Minneapolis-Honeywell Regulator Co.
151 Needham St.,
Newton Highlands 61, Mass.
(High-speed printer; computer)

General Electric Co., Computer Dept.
13430 N. Black Canyon Highway,
Phoenix, Ariz.
(Computer)

Intelligent Machines Research Div.,
Farrington Mfg. Co.
7019 Edsall Ave., Alexandria, Va.
(Data scanner and reader)

International Business Machines Corp.,
Data Processing Div.
112 E. Post Road, White Plains, N. Y.
(Computers and data processing systems)

National Cash Register Co.
Dayton 9, Ohio
(Data processing system)

Philco Corp., Government & Industrial Div.
4700 Wissahickon Ave., Philadelphia 44, Pa.
(Computer)

Radio Corp. of America,
Industrial Electronic Products
Front and Cooper Sts., Camden 2, N. J.
(Computer)

Remington Rand, Div. of Sperry Rand Corp.
315 Fourth Ave., New York 10, N. Y.
(Computers and data processing systems)

Royal McBee Corp.
Westchester Ave., Port Chester, N. Y.
(Computer)

Stewart-Warner Electronics Div.,
Stewart-Warner Corp.
1300 N. Kostner Ave., Chicago 51, Ill.
(Computer)

Underwood Corp.
1 Park Ave., New York 16, N. Y.
(Computer and punch tape equipment)

Where to Buy—Auxiliary EDP Equipment

Acme Visible Records, Inc.
Crozet, Va.
(Card and paper tape files)

Baltimore Business Forms Div.,
Baltimore Salesbook Co.
3126 Frederick Ave., Baltimore 29, Md.
(Continuous paper forms)

Carrier Corp.
Carrier Bldg., Syracuse 1, N. Y.
(Air conditioning equipment)

Chrysler Airtemp Div., Chrysler Corp.
341 Massachusetts Ave., Detroit, Mich.
(Air conditioning equipment)

Digitronics Corp.
Albertson Ave., Albertson, L. I., N. Y.
(Tape processing equipment)

Farrington Mfg. Co.
Industrial Center, Needham Heights 94, Mass.
(Optical reader of typewritten material)

Ferranti Electric Inc.
30 Rockefeller Plaza, New York 20, N. Y.
(Paper tape handling equipment)

Frigidaire Div., General Motors Corp.
Dayton 1, Ohio
(Air conditioning equipment)

Harford Metal Products, Inc.
Aberdeen, Md.
(Flooring for computer rooms)

Liskey Aluminum, Inc.
Friendship International Airport,
Box 506, Glen Burnie 4, Md.
(Aluminum flooring)

Macember, Inc.
1926—10th St., N. E., Canton, Ohio
(Computer platforms)

Minnesota Mining & Manufacturing Co.
900 Fauquier Ave., St. Paul 6, Minn.
(Magnetic tape)

Moore Business Forms, Inc.
4656 Wahl, Niagara Falls, N. Y.
(Continuous paper forms)

Paper Manufacturers Co.
9800 Bustelton Ave., Philadelphia 15, Pa.
(Teletypewriter papers and paper tape)

Reeves Soundcraft Corp.
Great Pasture Road, Danbury, Conn.
(Magnetic tape)

Standard Register Co.
Dayton 1, Ohio
(Continuous paper forms)

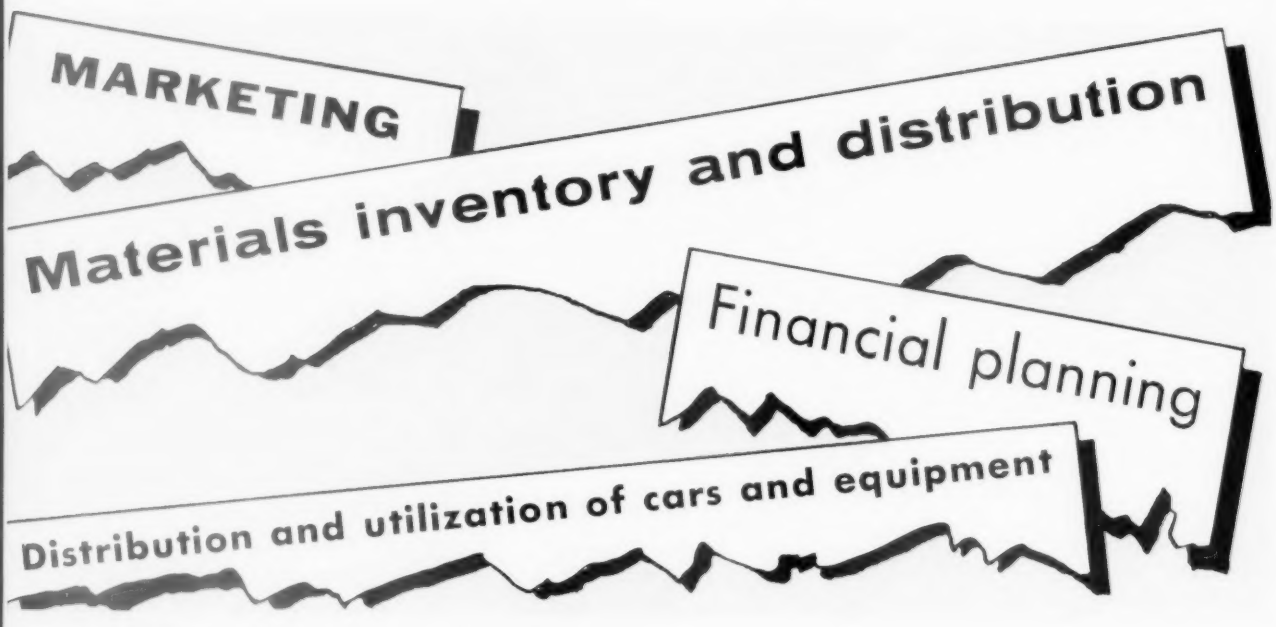
Tab Products Co.
995 Market St., San Francisco 3, Calif.
(Punch card and magnetic tape files)

Taller & Cooper, Inc.,
Div. of American Electronics, Inc.
75 Front St., Brooklyn 1, N. Y.
(Paper tape and punched card equipment)

Thomas Collators Inc.
100 Church St., New York 7, N. Y.
(Paper collators)

Trane Co.
206 Cameron Ave., La Crosse, Wis.
(Air conditioning equipment)

York Div., Borg-Warner Corp.
Roosevelt and Thomas Sts., York, Pa.
(Air conditioning equipment)



Better Controls in the Future

"A computer provides railroad management with more varied and more concisely digested information—faster," comments one railroad officer. "In a very real sense," he says, "the computer is thought of not only as a money-saver, but as a money-maker in the form of a vital management tool." Railway Age surveyed a large group of railroads and the impression is that future computer impact will be greatest in these four areas:

Distribution and Utilization of Cars and Equipment: Pilot studies have been made by several railroads in this field. Most studies have been concerned—at least initially—with special cars, such as covered hoppers or DF-equipped cars. Such work will be broadened to general purpose equipment. Because of the vast amount of material to be studied (car movements, for example), computers will be able to analyze a veritable mountain of paperwork in a short time. Empty car distribution will receive first attention, but loaded car moves also will be analyzed as part of the overall program of better car utilization.

Equipment utilization studies are under way on several railroads. Most deal with motive power and M W equipment. Computer techniques for dispatching all automobiles and trucks operating on a pool basis are planned by a western railroad. Office equipment and machine tool utilization and distribution are likewise under computer analysis plans.

Financial Planning: With computerization this work will be more accurate and more prompt than now possible. One bugaboo in financial planning is the problem of forecasting. A railroad comptroller says: "There are too many variables involved, so that we have to make assumptions in order to get the forecasting job done in time to be of any value. Not only can the computer take these variables into account, but it can turn out the forecast in 'jig time'."

This time and accuracy factor is also important in cost studies. Railroads will be able to better plan their expenditures by computer because they will have more accurate and timely cost information.

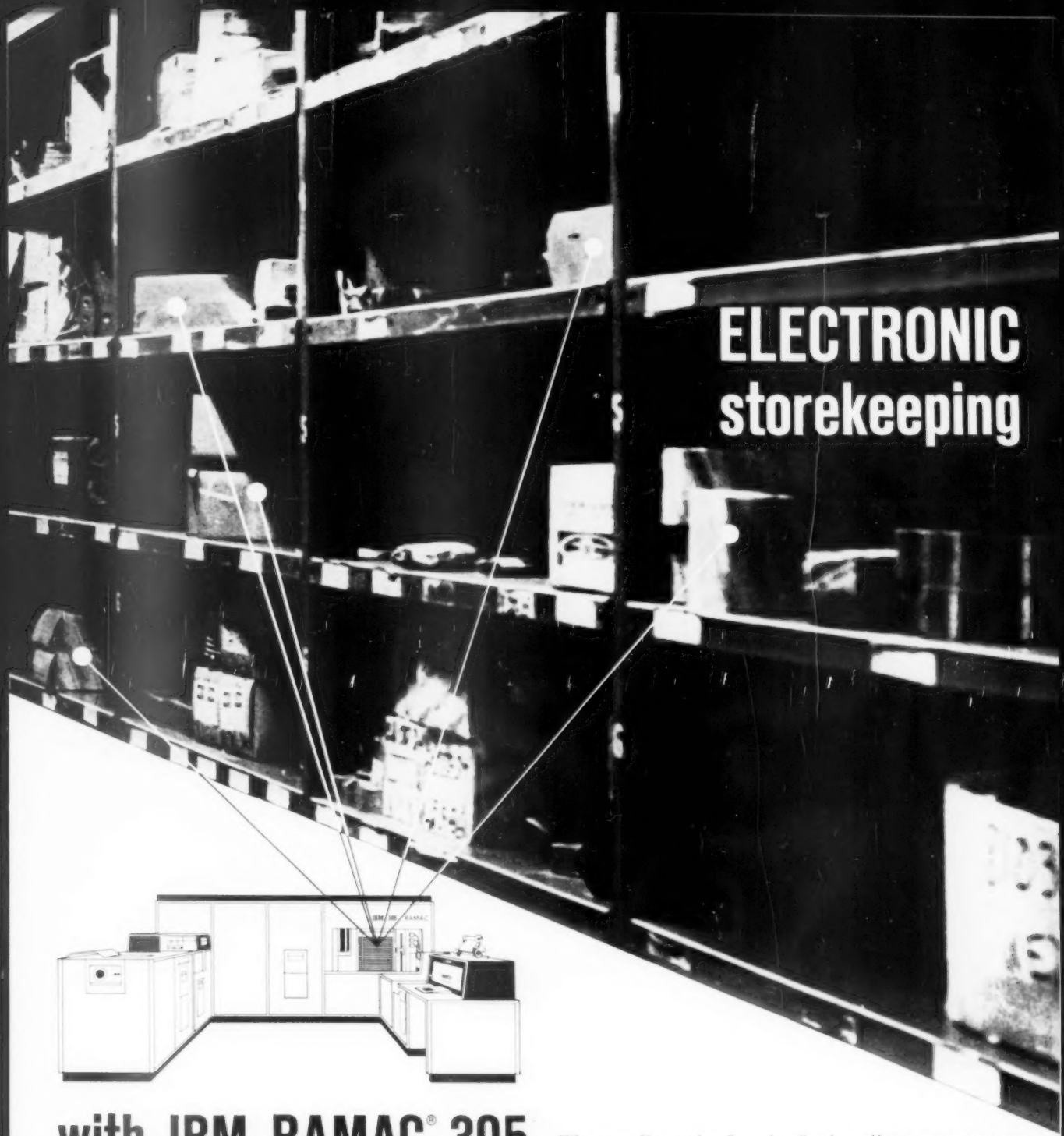
Materials Inventory and Distribution: Four railroads have computerized their P&S procedures already; other roads are planning similar moves. This practice will grow, because the savings are large and tangible. Biggest saving is in reducing inventory size. Other savings come from reducing such things as obsolescence, insurance, deterioration, handling, storage and theft.

Computer analysis of inventory shows where standardization can be accomplished. A midwestern railroad eliminated 15,000 items from its master catalog. This road placed its entire inventory on a file computer, which provides daily information on inventory control and accounting.

Marketing: The Eastern railroads' paint rate study represents the beginning of a new era of computer-oriented marketing studies. Basis for the proposed rates are the Eastern roads' "out-of-pocket" costs. To determine these costs, exhaustive market research and cost accounting studies were carried out using a computer for much of the detailed analysis.

Not only are rates involved in market research, but computer analyis will be used for traffic flow and volume studies. Similar treatment will be accorded studies to determine whether railroads can afford to provide the types of service requested by shippers.

"Since much market research is based on surveys and statistical studies, computers are just the thing to do the work," says a traffic vice-president. The trend will be to continue to rely more and more on market research for traffic sales and service. Computers can provide such marketing information quickly, so that management can act.



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"Electronic Storekeeping" with the RAMAC 305 strikes at the heart of the inventory investment problem . . . making possible completely centralized control.

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The new Executive Inquiry Station allows management to get answers to vital questions on:

- vendor performance
- on-order commitments
- "how-much" and "where" of any inventory item
- comparison of expense to budget by item
- information on individual-part usage
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GRS achieve
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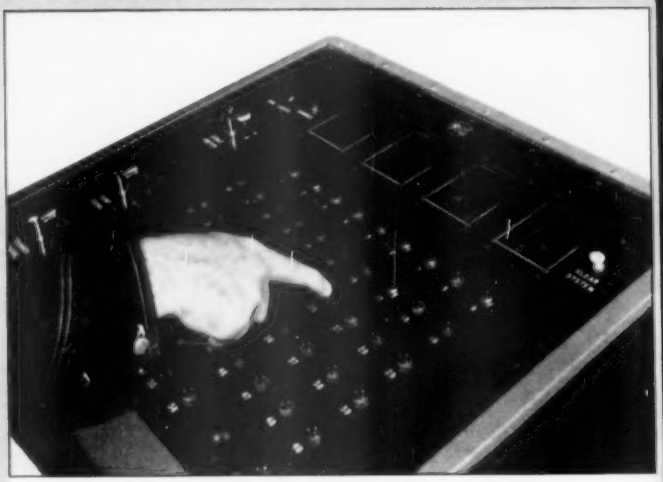
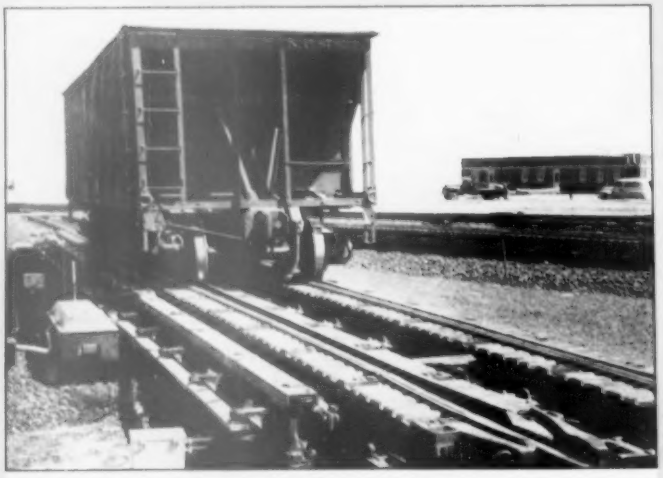
LOOK AT THE REC

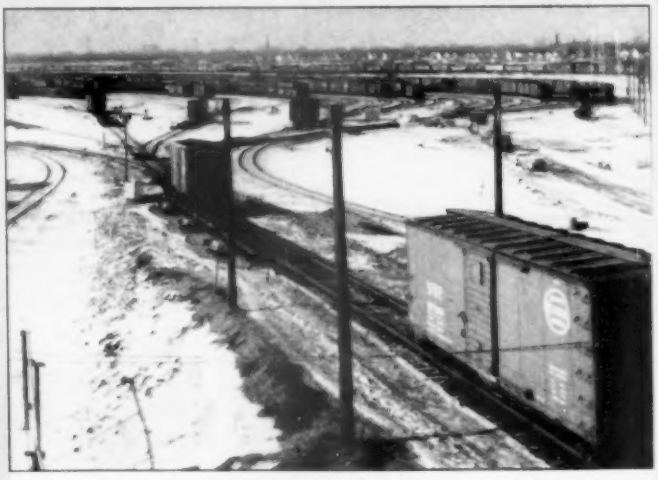
Electric car retarders—the first commercial retarder installation was by GRS. Proved by over 30 years of service and experience, the all-electric retarder is the only design that exerts pressure even *when power is off*.



Automatic switching—developed by GRS. You route a car by simply pushing a button—*the switches line up automatically* ahead of the car. A magnetic memory system can be supplied to give programed switching of entire trains.



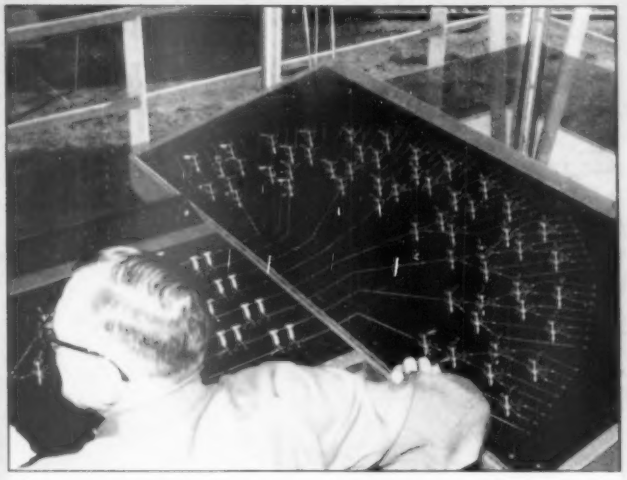
Radar speed control. GRS was the first to apply radar in controlling freight car speeds, using the Doppler principle. This was a major advance toward complete electronic yard automation.



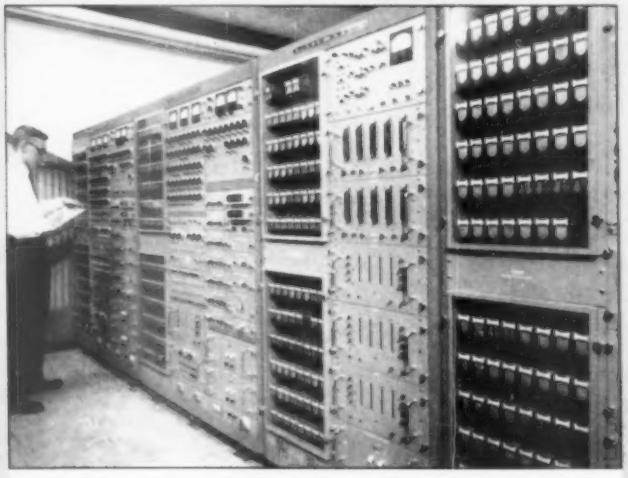
Fully automatic speed control—developed by GRS to give automatic control of release speeds of cars from retarders. Radar speed control was modified to compensate for rolling resistance, as no two cars behave exactly alike. Another giant step forward.

ments ication

ORD



Diagrammatic control panel—developed by GRS, an application of human engineering. All tracks, switches, retarders, etc. are displayed on the panel in logical relationship. All controls are within easy reach.



Precision electronic analog computer. The heart of Class-Matic yard automation. Takes into account every pertinent factor, including distance-to-go to coupling based on the actual rest position of the last car.

Starting with the all-electric, all-weather car retarder, GRS engineering has contributed a steady flow of advances in the field of car classification. The major achievements—automatic switching, radar control, electronic automation—all have come from the laboratories of GRS—all have proved themselves in service.

Even in the details, GRS has been in the forefront: photo-electric cut detection; built-in test facilities; fast acting, fully trailable, electric switch machines. The problem of dependable track shunting, so important in yard automation circuits, was solved by the GRS impulse track circuit.

GRS now offers the ultra-modern Class-Matic system. Complete electronic automation for classification yards, directed to these ends—faster classification, safer coupling, lower operating costs, and improved service to your customers.

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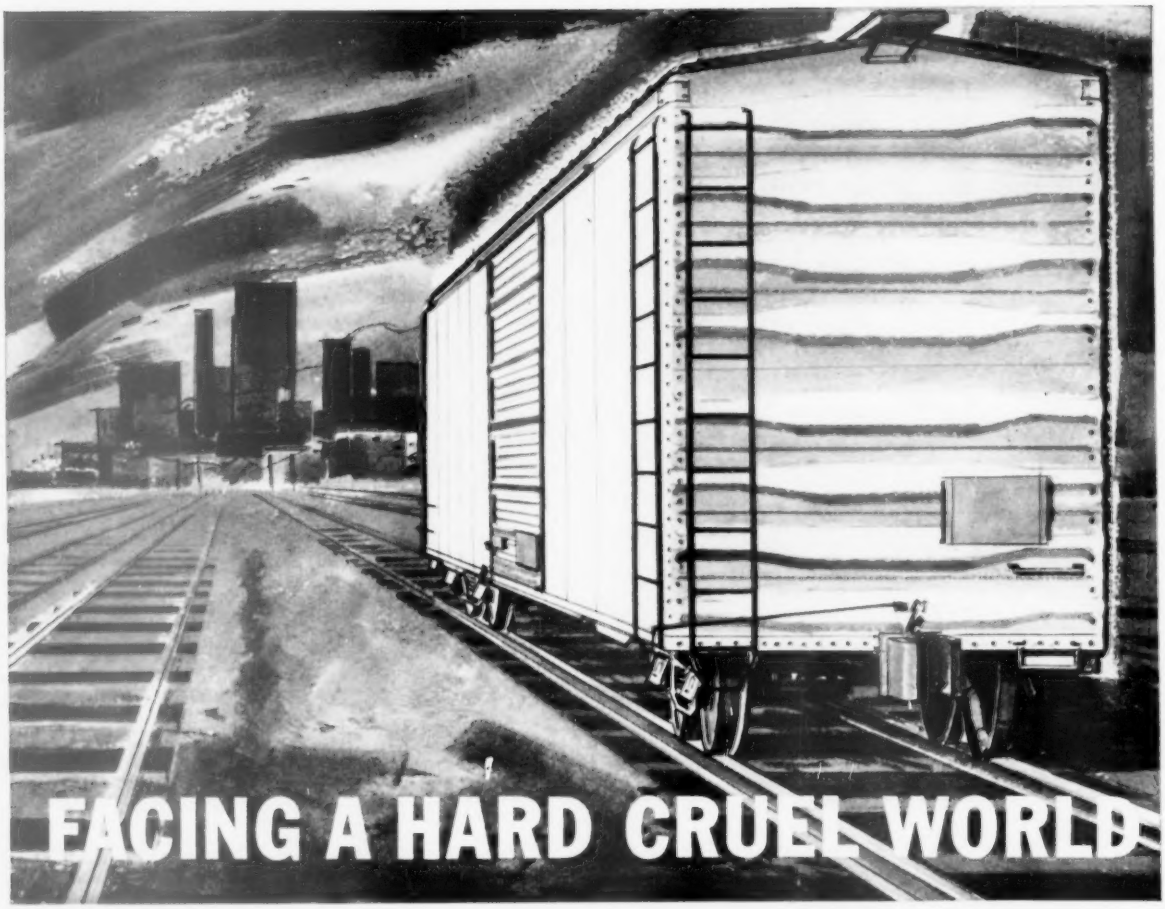

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Whenever there's any kind of lifting, loading or track maintenance to be done in your yards, there's never any reason why an American DiesELectric should be standing idly by. With interchangeable fronts, and "workhorse" ability, American equipment is always ready to step in on a wide variety of jobs.

On this job for the Northern Pacific Railway, in their Duluth, Minn., yards, a versatile American DiesELectric Locomotive Crane is helping to simplify the installation of a new scale foundation. By using ordinary fill to build temporary crossings over the tracks in the crowded yards, Ready-mix trucks can reach the scale foundation site easily and quickly.

American equipment is expressly designed for time and money saving duties. With interchangeable fronts . . . hooks, clamshell, magnet, dragline, grapple, piledriver . . . American DiesELectric cranes, as well as American Truck, Self-propelled and crawler cranes . . . will help you keep ahead of schedule on all your jobs. For handling any assignment, however difficult, you can always count on American cranes for more dependable, more efficient service. Write us for detailed and illustrated catalog information on American's complete line of equipment.

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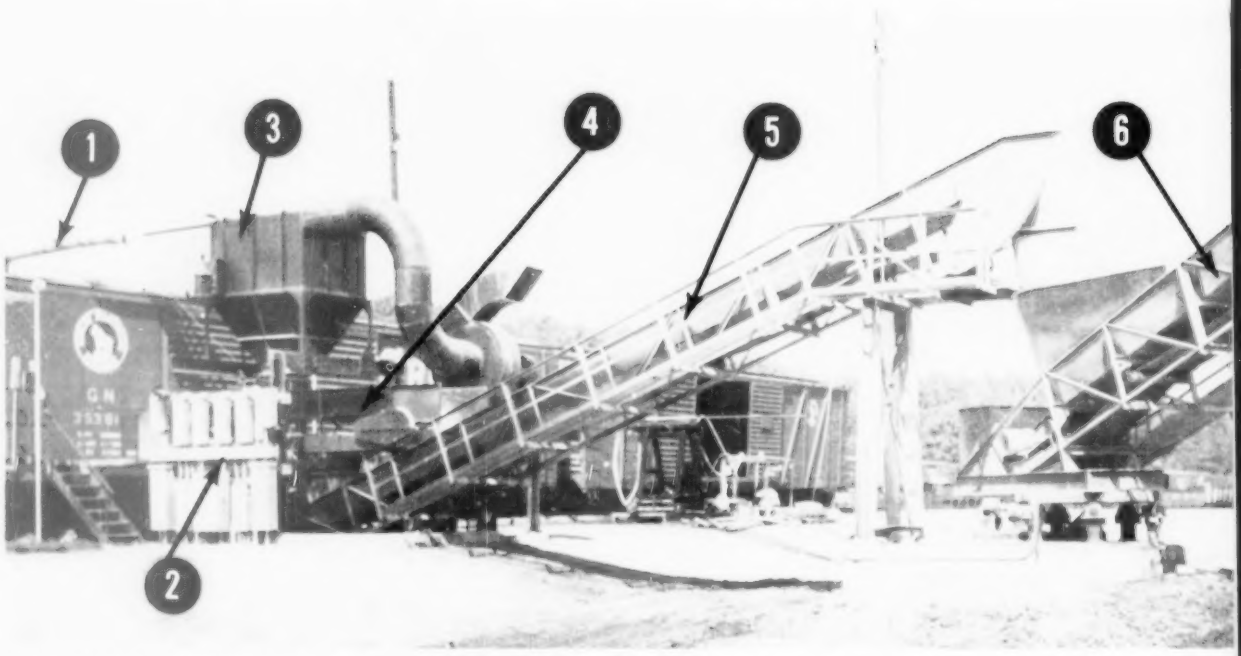
Special materials handling equipment

CROSBY-LAUGHLIN DIVISION
Drop forged fittings for wire rope-chain

Pushbutton System Pays Off

GN Mechanizes Car Cleaning



CAR CLEANING EQUIPMENT includes Link-Belt conveyor system to move trash to incinerators. Shown here are: 1—Vacuum connections; 2—Control equipment; 3—Vacuum cleaner hopper bin; 4—Retractable conveyor; 5—Elevating conveyor; 6—Cantilever conveyor; 7—Incinerators. The facility requires a six-man crew.

A unique pushbutton cleaning system is turning out 200 spick-and-span cars a day for Great Northern's shippers.

The facility has doubled the previous output, cut high cleaning costs. Improvements now under way are expected to increase the production rate.

The system—at GN's Delta yard, Everett, Wash.—is supplying Northwest shippers of pulp, paper and lumber. Next year, a second cleaning facility will be located on the road's eastern lines to serve shippers of grain, flour and sugar.

Operating two 8-hr shifts, five days a week, the system requires a six-man crew. Three men prepare the cars for cleaning, two handle the giant vacuum cleaner, one operates the automatic washer.

The system has three 100-car-capacity storage tracks on a 0.2% ascending grade which lead into a single 250-ft level cleaning track. It then descends on a 0.35% grade to the receiving yard.

Thirty-five cars can be hauled by the car pull at one time. As cars are pulled into the cleaning track, workmen remove all banding material from car sides.

Grain doors are pulled down and stacked at the car doors along with other debris. As each car reaches the grain door reclamation station, the doors are placed on a conveyor that transfers them to a storage car on an adjacent track. Next, the car is stopped at the retractable conveyor where debris is removed and the car is vacuumed. It is then positioned at the washing station.

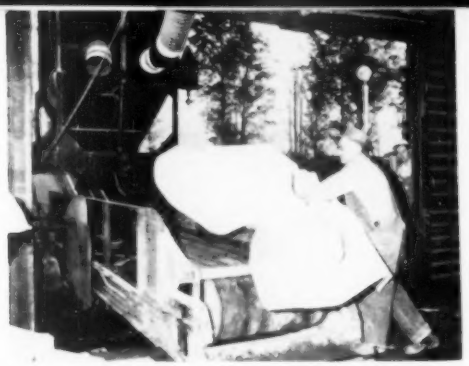
After washing, cars make one of three moves. Most go to the ready track. If any require steam cleaning they are shunted to a second wash track where a Vapor Clarkson Upgrader is located. Cars needing light repairs are switched to a third track.

Gondola cars are grouped on one track for cleaning and are pulled to the concrete clean out pit, a one-spot operation. Debris falls on a conveyor in the bottom of the tapered pit and moves to the main conveyor for dumping and burning. A swing-over water line, terminating in a spray header, is moved over the car and washing is done as a car is pulled through.

Improvements being made to increase the system's efficiency include:

- A water spray at the vacuum fan exhaust duct to eliminate dust and dirt particles in the air.
- A 100-ft grain door belt conveyor to parallel the cleaning track and adjoin the nail flattener. This will eliminate one step in the cleaning line.
- A pressure plate to replace the roller nail flattener. This will press nails into the grain doors instead of bending them over.
- A spring loaded retarder at the south end of the concrete pit to position cars more accurately.
- Four trapping machines for closing hopper doors at the clean out pit, two on each side.

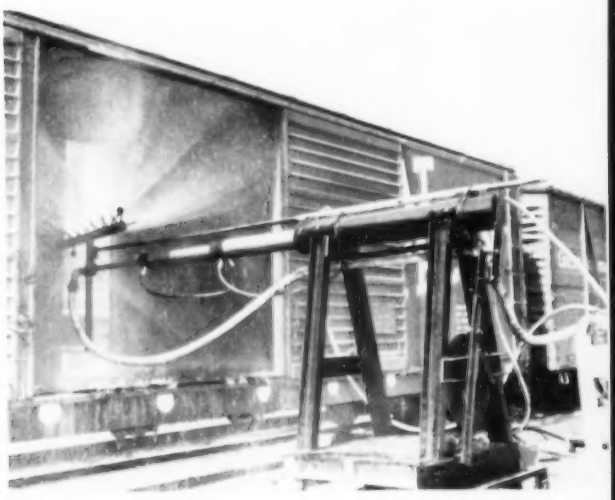
Work



RETRACTABLE CONVEYOR at car floor height enters door for disposal of bulky materials removed by workmen. Safety switch at bottom of conveyor end retracts conveyor if it strikes any object in travel. Conveyor dumps waste material into one of two incinerators. Grain doors are pulled down and transferred to a storage car on an adjacent track by a conveyor at a previous station. Rollers on grain door conveyor automatically flatten protruding nails.

KING SIZE vacuum cleaner sucks up remnants of flour, grain, cement and dust. Cleaner with 5-ft nozzle, capacity of 7,500 cfm, is powered by 50-hp motor with 54-in. fan generating 14-in. of vacuum. Material picked up goes through hose to storage bin. When cleaner is shut off, trap door in bottom of bin automatically opens and dumps refuse on main conveyor that moves it to incinerator.

TELESCOPIC washer hose, air-operated, can be placed in car in 5 sec, retraced in 7 sec. Multi-nozzle head swings through 80-deg arc at 50 oscillations per minute, delivers water at 300 psi pressure. Track is tilted 4 in. for drainage.



PUSHBUTTON PANEL controls all functions of the cleaning process. Buttons are used to sound warning signal, activate tow line and its haul-back link. They start and stop conveyor belt and vacuum cleaner, swing discharge end of cantilever conveyor over one of the two incinerators, line up and operate the washer. All operations are interlocked electrically. Entire procedure is timed with approximately 2 min allocated for each operation. The area is illuminated for night work.

Vernon Smith, B. R. C. Superintendent of Motive Power, discusses lubrication with Standard Oil's John Black

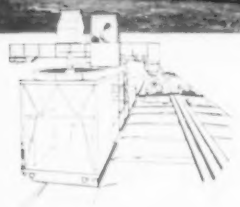
Every way he can, John Black uses his engineering training and experience to effect operating economies for The Belt Railway Company of Chicago. John's job is to think of ways money can be saved through better lubrication. It's his business to find ways to help the line save on the use of diesel fuel.

But John Black isn't employed by the B. R. C. His employer is Standard Oil. John's job at Standard is to work for the railroads that are his customers. He has 15 years' engineering and service experience with diesel equipment as background for his job. His experience includes service as an area engineer for a diesel locomotive builder plus submarine duty in the Navy. John has an engineering degree from Pennsylvania State and has completed the Standard Oil Sales Engineering School course.

Standard Oil has a staff of specialists who work only with railroads on the use of petroleum products. Like John Black, their job is to work for their customers. To have one of these men call on you anywhere in the 15 Midwest and Rocky Mountain states, just let the Railway Sales Department know. Write, wire or telephone. **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

You expect more from **STANDARD** *and you get it!*

THE DIFFERENCE BETWEEN "SLOW" AND "GO"
IN BUNKER ICING OPERATIONS



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Conveyco Icer carries its own ice supply... produces standard bunker ice, meat car and frozen food bunker ice, and snow ice for top icing... has automatically operated salt supply.

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An essential book for operating employees. Analyzes Standard Code of Operating Rules of the A.A.R. Includes CTC, Block Signal and Interlocking Rules. *New data* for telegraph operators and train dispatchers. *Plus* radio and television applications in railroading. 480 pp., cloth, $6.00.

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What! Free cartridge bearings?

Well, not quite. But you *can* get almost two Absco Cartridge Bearings for the price of one freight car roller bearing—giving you, in effect, every second bearing nearly free. Here's how it works out:

Roller bearings cost about $800 for a 6 x 11 car set. Under the conversion plan* Absco Cartridge Bearings cost about $430. Thus $100,000 would equip only 125 cars with roller bearings, but would provide Absco Cartridge Bearings for 232 cars.

The Absco Cartridge Bearing is less sensitive to impact, overload, and the effects of intermittent operation than the roller bearing. It is used by 23 railroads for various types of service, including piggyback. Your Brake Shoe representative will be glad to discuss a test program for your road. American Brake Shoe Company, Railroad Products Division, 530 Fifth Avenue, New York 36, N.Y.

*You turn in your own scrap AAR journal bearings equal to the weight of bronze you receive in new Absco Cartridge Bearings.

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Quality products cut your ton-mile costs

Hotbox 'Task Force' Proposed

► **The Story at a Glance: Should a special "task force" be assigned to solving the hotbox problem? Emphatically yes, according to Ward N. Messimer, retired manager—equipment, of Merchants Despatch Transportation and Northern Refrigerator Line.**

His viewpoint: Progress toward reducing the number of hotboxes has been disappointing. Experience in similar research and development situations has proved the worth of the task force approach. Initially, a task force should have been handed the hotbox problem—but it's still not too late to take such action.

Successful development of the AAR standard coupler and present standard air brake and, more recently, successful simplification of interchange rules point to the value of concentrated effort. Similar task-force operation, Ward N. Messimer believes, would be a good bet to whip the hotbox problem.

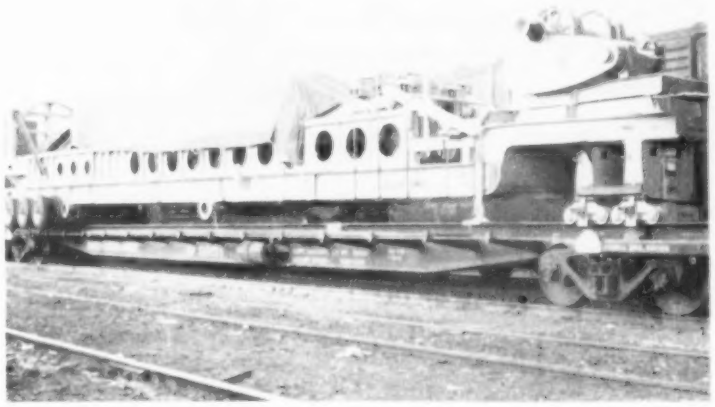
He doesn't think it's too late to try, although "originally a task force or some special group should have been assigned full time to develop the proposal to eliminate the hotbox problem so that all the various features involved . . . could have been considered and protected. In view of the disappointing progress toward reducing hotboxes as evidenced by recent reports, it would seem that such a force composed of men competent and experienced in lubrication, car maintenance and operation could be engaged even at this late date to work out a comprehensive program that will produce the results for which railroads have been hopefully in search."

Such a task force approach, he suggests, could be made under the guidance of the AAR Mechanical Division's Arbitration Committee, which handled the simplification of interchange rules through introduction of machine billing and is now working on development of trailer-container interchange rules.

Mr. Messimer is critical of the apparent bypassing of the Arbitration Committee in the association's handling of the hotbox problem thus far. The committee, he comments, "is vitally concerned in any proposition where the administration and enforcement . . . is accomplished through the interchange rules and generally takes no action in connection with such matters without thorough investigation and consideration. However, in response to a directive, the provisions requiring the application of lubricating devices . . . were authorized to be incorporated in the rules. In this instance there was practically no opportunity to investigate the proposition on the part of the Arbitration Committee and there was no prior consultation on the subject with other interested committees of the division."

Mr. Messimer, speaking before a meeting of the Car Department Association of St. Louis, also had these views:

- A more positive method is needed to control truck maintenance of all cars. One road, he said, has been pressing for stricter requirements for condemnation and renewal of certain critical truck parts "and I believe this movement is worthy of our active support. It's especially important that appropriate action be taken to insure that the correct size of controlled clearance bearings is applied in all cases." An eastern carrier's survey, he said, showed that 69% of controlled clearance bearings were not applied in accordance with instructions.
- The requirement that all cars must be equipped with lubricating devices by Jan. 1, 1960, sets "an impossible target date" which will probably be extended for practical and economic reasons. As it stands, however, "the fact that so little time is allowed to equip more than 1,000,000 cars induces extraordinary efforts to accelerate the applications to the extent that devices with questionable records are likely to be applied to cars with unfit truck conditions." The result: "Little if any contribution toward improving our situation."
- Specifications for lubricator acceptability should be tightened. Under present specs, Mr. Messimer points out, a lubricator suitable for approval shall experience no more than 105 hotbox set-outs per 54,000 months of active service. Unconfirmed reports indicate that the device with the best record showed a set-out rate well below 105. Mr. Messimer contends that the industry can afford only the best and "devices of any less effective value should not be considered for full or conditional approval for unrestricted use even though they may be acceptable under the present specification—which I believe should be revised to reduce the acceptable set-out rate and by the process of attrition [to] eliminate all devices with less desirable records."



Air Force Missile Goes Piggyback

A full-size model of the USAF Minuteman intercontinental ballistic missile rode the rails recently on delivery from Seattle, Wash., to Edwards Air Force Base, Calif. The missile and its launching equipment, mounted on a 72-ft highway trailer, were shipped on a Southern Pacific 85-ft Clejan piggyback flat car. Total weight of the load: almost 90,000 pounds. The trailer was secured to the car in three positions, using (left to right) three sets of axle attachments, a center support and two portable standees. Minuteman is under development by the USAF Ballistic Missile Division for the Strategic Air Command. It's designed to be fired from underground silos and mobile launchers, including railroad cars (RA, July 6, p. 36; Sept. 14, p. 24).

NYC Speeds Boston-Midwest Service

Cuts up to five hours have been made in New York Central's scheduled running time between Boston and the Midwest. Simultaneously, the Central put into effect improved Flexi-Van rail-highway schedules between Chicago and New York and announced other schedule improvements involving freight service over the whole system.

The schedule changes were announced last week by John F. Nash, Central's vice president—operation at the railroad's annual freight sales and service meeting in Cleveland. "These improvements are just one indication of our determination to use our prime service route to the fullest advantage in providing better and faster service to our customers," Mr. Nash told approximately 200 freight sales personnel from all over the Central system who attended the meeting.

Train BB-1, the Boston connection for through westbound trains to St. Louis and Chicago, has been rescheduled to change the deadline for loading of merchandise and forwarder shipments. The new cut-off time is 5:30 p.m., instead of 12:30 p.m., in both Boston and Worcester. The improved schedule applies also to shipments via Flexi-Van from these points. Under the new schedule, Boston area shippers will be able to "load the majority of their day's business for second-morning delivery in either Chicago or St. Louis," according to the New York Central.

Flexi-Van loading deadlines in Chicago on Mondays, Tuesdays and Wednesdays are now 10 p.m., four hours later than the previous schedule. The change will permit second-morning delivery on Wednesday, Thursday and Friday in New York for vans loaded as late as the close of the business day even on the periphery of Chicago.

Other improvements include two hours cut from train NY-6 between St. Louis and DeWitt (Syracuse) and rescheduling of train PC-1 between Pittsburgh and Chicago to provide first-evening arrival at Elkhart and second-morning deliveries in Chicago and to Chicago connections.

Railroading After Hours with Jim Lyne

NARROW AND HIGH—Letters on narrow gage continue to come in. Apparently I gave the impression that I'm more ignorant about narrow-gage railroads (elsewhere than in North America) than I actually am. M. A. Lockhart of London, England, tells me about the 790 miles of 2-ft-gage line in South Africa, which have 69 Beyer-Garratt locomotives; and the East African Railways which recently received 34 Beyer-Garratts of 83,350 lb tractive effort. These 2-ft lines are, quite evidently, substantial railroads—not mere tourist attractions.

George F. McGowan, who was formerly general administrator of the Ecuadorean State Railroads, tells me these lines have 40 miles of 25½-in. gage in commercial operation, plus 1,000 miles of 3½ ft. I am, of course, familiar with the fact that a lot of mileage in Latin America is less than standard—much of it 1 meter.

George has recently returned from Peru and Bolivia—remarking that the Central of Peru has higher elevation than any standard-gage railroad in the world (16,000 ft). He's impressed with the Southern of Peru's boat connection on Lake Titicaca—highest navigable water in the world. They've some heavy grades in that high country too—up to 7%, without rack or Shay operation either.

THE WHY OF ABANDONMENTS—I overhead several trainmen the other day discussing a rumor that their railroad was going to abandon several stations. There was general assent to the conclusion expressed by one of them: "This railroad doesn't want more business; it wants to get rid of what it's got."

These fellows weren't angry—they were just plain blue, and I sympathize with them. It seems to me that whenever abandonments are threatened—whether of lines, stations or schedules—it would be worthwhile to present the facts, not only to the regulatory commissions and the shipping public, but also to employees. And not after abandonment is announced, but as soon as it appears as a possibility.

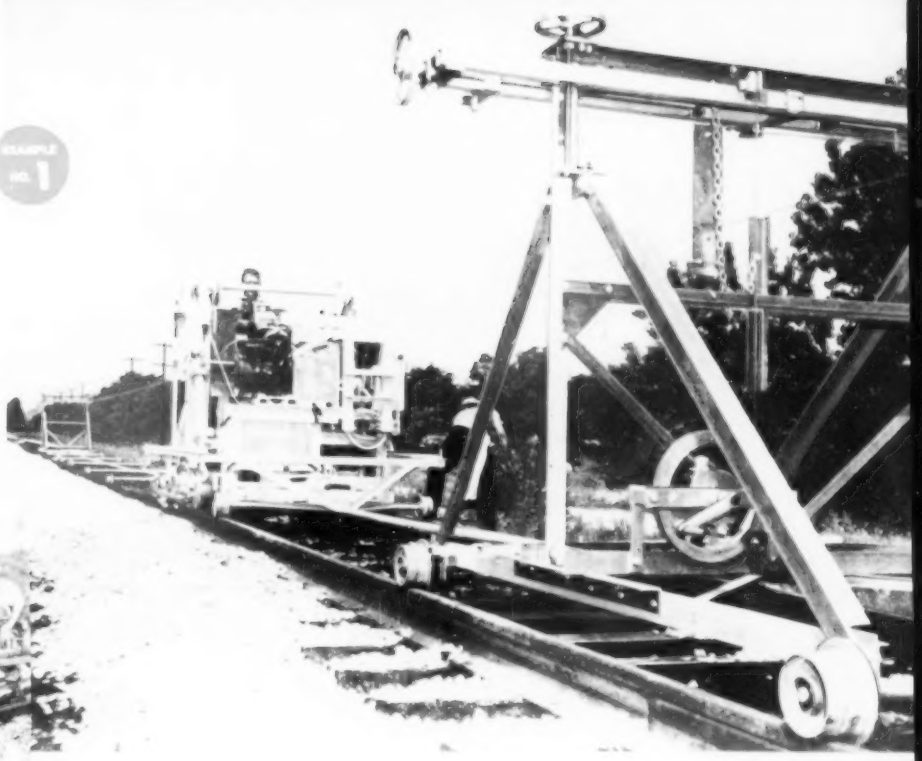
Railroad officers take no more pleasure in abandonments than employees do—and, if employees had the simple arithmetic on these situations before them, as management does, they'd understand. At least, the competent ones would.

Abandoning red-ink stations and services is like trimming a tree. If you don't cut out the deadwood now and then, the first thing you know the whole tree's gone.

MERCHANDISING UP-TO-DATE—I'm told that one of the railroads operating Slumbercoaches is giving them al' Scottish names. Such labels draw attention pleasantly to the thrift which use of these cars exemplifies—and are particularly appropriate, considering that the head of this particular railroad has a name beginning with "Mac."

On the subject of merchandising and advertising, I hope all our readers will take a good look at the attractive advertisement which appeared on our November 16 front cover, because—as far as one dares predict anything—that will be the last advertisement to appear on our front cover.

We began withdrawing advertising from the front covers more than two years ago, continuing only those where commitments to our advertising patrons were involved. We felt that our policy of making Railway Age a "time-saver" magazine required us to use the front cover to advise readers of principal features within. The cover advertising was always interesting, but we came around to the opinion that the space should be used to "sell" the entire content of Railway Age, rather than a particular product.



EXAMPLE No. 1

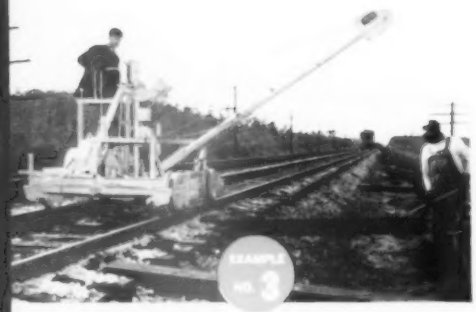
SURFACING OPERATIONS

The Nordberg Tamping Power Jack and Trak-Surfacer team raises track, tamps ties to hold the raise, and provides propulsion power. The Trak-Surfacer uses a stretched wire to form a reference line for the top of the grade rail. Following right after, the Gang Tamper tamps all ties. Then the Trakliner® and Line Indicator line tangent and curve track.

EXAMPLE No. 2

RELAYING OPERATIONS

The Dun-Rite® Gaging Machine and Bronco is the key machine, used with these other Nordberg units: Power Wrench, Self-Propelled Spike Puller, Ballast Router, Self-Propelled Adzing Machine, Rail Drill, Tie Drill and Spike Hammer, for completely mechanized relaying operations.



EXAMPLE No. 3

TIE RENEWAL OPERATIONS

The Nordberg Gandy® is one of the important machines used for reducing tie renewal costs. This efficient unit is used to pull out old ties, insert new ties, pile or load old ties, set machines on or off the track, and distribute new ties. Other Nordberg machines for tie renewal include the Hydraulic Spike Puller and Carriage, Tie Drill and Spike Hammer.

ORGANIZED MECHANIZATION with NORDBERG MECHANICAL MUSCLES will give you maximum maintenance economy

ORGANIZED MECHANIZATION has two vital parts. First, *providing the best combination of equipment to do a given job*, and second, *coordinating that equipment into an efficient working team*.

The advantages of Organized Mechanization, utilizing Nordberg Mechanical Muscles are (1) Single source of responsibility for all machines; (2) Each machine designed and built to work most efficiently with other Nordberg machines; (3) Maximum parts interchangeability between machines; and (4) Training of operators is easier and abilities are readily transferred to operate all machines built and backed by Nordberg.

Illustrated are three examples of the way in which Nordberg Mechanical Muscles are used to make up Organized Mechanization teams for specific maintenance work . . . *to assure better, faster track maintenance operations at the lowest cost.*

© 1952 N. M. CO.

RSM

Write For LEASING Plans

NORDBERG MFG. CO., MILWAUKEE 1, WISCONSIN

NORDBERG Mechanical Muscles®

The number one insulation for over a half century!

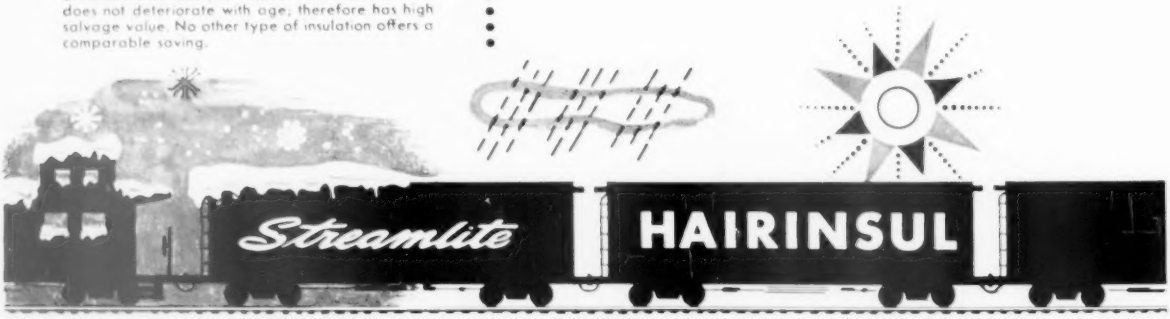
SIX MAJOR REASONS WHY LEADING REFRIGERATOR CAR LINES SPECIFY *Streamlite HAIRINSUL*

1. **LOW CONDUCTIVITY.** Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity—.25 btu per square foot, per hour per degree F., per inch thick.
2. **LIGHT WEIGHT.** Advanced processing methods reduce weight of Streamlite Hairinsul by 40%.
3. **PERMANENT.** Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.
4. **EASY TO INSTALL.** Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.
5. **COMPLETE RANGE.** Streamlite Hairinsul is available ½" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other specified coverings are available.
6. **HIGH SALVAGE VALUE.** The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

Since Hairinsul was first used in refrigerator cars more than 50 years ago, it has protected millions of dollars worth of perishables through all weather conditions—no matter how severe.

Present-day Streamlite Hairinsul, the result of improved processing methods, offers refrigerator car builders 40% less weight. The factor of lighter weight, added to the five other exclusive advantages of Hairinsul, assures refrigerator car builders today's more efficient insulation.

AMERICAN HAIR & FELT COMPANY
Merchandise Mart • Chicago 54, Illinois



SETS THE STANDARD BY WHICH ALL OTHER REFRIGERATOR CAR INSULATIONS ARE JUDGED

MARKET OUTLOOK *at a glance*

Carloadings Drop 8.8% Below Previous Week's

Loadings of revenue freight in the holiday week ended Nov. 28 totaled 574,126 cars, the Association of American Railroads announced on Dec. 3. This was a decrease of 55,236 cars, or 8.8%, compared with the previous week; an increase of 34,637 cars, or 6.4%, compared with the corresponding week last year; and an increase of 20,404 cars, or 3.7%, compared with the equivalent 1957 week.

Loadings of revenue freight for the week ended Nov. 21 totaled 629,362 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, Nov. 21

District	1959	1958	1957
Eastern	90,832	93,433	99,940
Allegheny	114,673	113,928	123,646
Pocahontas	53,536	54,079	56,212
Southern	121,317	118,414	111,829
Northwestern	78,183	66,201	71,578
Central Western	121,586	124,492	122,942
Southwestern	49,235	49,207	46,616
Total Western Districts	249,004	239,900	241,136
Total All Roads	629,362	619,754	632,763
Commodities:			
Grain and grain products	53,954	52,937	50,650
Livestock	7,046	6,198	8,207
Coal	124,490	122,175	129,934
Coke	8,274	8,794	9,154
Forest Products	40,493	37,581	34,026
Ore	42,485	27,772	28,115
Merchandise l.c.l.	39,538	44,287	49,952
Miscellaneous	313,082	320,010	322,725
Nov. 21	629,362	619,754	632,763
Nov. 14	638,408	644,531	647,297
Nov. 7	560,658	658,442	675,579
Oct. 31	588,148	674,991	713,994
Oct. 24	607,347	674,845	703,688
Cumulative total, 47 weeks	28,040,784	27,499,189	32,725,538

PIGGYBACK CARLOADINGS.—U. S. piggyback loadings for the weeks ended Nov. 14 and Nov. 21 totaled 8,284 and 8,906, respectively, compared with 6,509 for week ended Nov. 15, 1958, and 6,748 for week ended Nov. 22, 1958. Loadings for 1959 up to Nov. 21 totaled 375,401 cars, compared with 248,438 for the corresponding period of 1958.

IN CANADA.—Carloadings for the seven-day period ended Nov. 14 totaled 77,547 cars, compared with 82,813 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
Nov. 14, 1959	77,547	27,429
Nov. 14, 1958	73,006	26,756
Cumulative Totals:		
Nov. 14, 1959	3,408,958	1,230,221
Nov. 14, 1958	3,329,928	1,230,804

New Equipment

FREIGHT-TRAIN CARS

► *Illinois Central.*—Acquisition of 2,495 new freight cars will constitute the major part of a $26,800,000 equipment program for 1960. Company shops will build 1,500 70-ton hopper cars, 500 50-ton box cars and 100 bulkhead flat cars. IC will acquire 200 70-ton gondolas, 150 covered twin hopper cars, 20 covered triple hopper cars and 25 piggyback flat cars from outside car builders.

LOCOMOTIVES

► *Illinois Central.*—Will purchase 15 GP-9 road-switchers as part of a $26,800,000 equipment acquisition program for 1960.

► *Mines de Fer de Mauritanie.*—Is accepting bids for 14 diesel-electric locomotives for road service, and six more for yard service. In addition, bids are being sought on 494 large-capacity cars of various types. Specifications are available to manufacturers from MIFERMA, Boulevard Lannes, Paris 16, France.

SPECIAL

► *Milwaukee.*—Will acquire additional Flexi-Van equipment through lease arrangement with Strick Trailer. Lease will cover 25 85-ft flat cars; 40 bogies; and 75 40-ft vans (45 insulated, 20 high-volume with 9-ft inside height and 10 open-top). Deliveries are scheduled for spring of 1960.

New Facilities

► *Atlantic Coast Line.*—Ordered CTC wayside equipment from Union Switch & Signal—Division of WAB Co. for installation on 27 miles between Vitis and Lakeland, Fla. Control will be from an existing machine at Ocala.

► *Great Northern.*—Ordered equipment from General Railway Signal Co. for the installation of 99 miles of CTC between Brookston and Gunn and Brookston and Kelly Lake, Minn. From the double-stacked control panel at Superior, Wis., a 62-mile carrier link will transmit the codes to a converter location at Brookston. The GN has also ordered equipment from GRS for the installation of 76 miles of CTC between Dodson and Pacific Jct., Mont. A double-stacked control machine will be located at Havre, Mont.

Maintenance Expenditures

► *Down 2.2% in September.*—Expenditures by Class I roads for maintenance of equipment, way and structures in September 1959 were down about $5.5 million, compared to the same month in 1958, according to report of ICC Bureau of Transport Economics and Statistics summarized below:

	Sept. 1959	Sept. 1958	% Change
Maintenance of Way & Structures	$ 99,448,377	$106,533,438	−6.7
Maintenance of Equipment	143,613,945	142,073,110	+1.1
Totals	243,062,322	248,606,548	−2.2

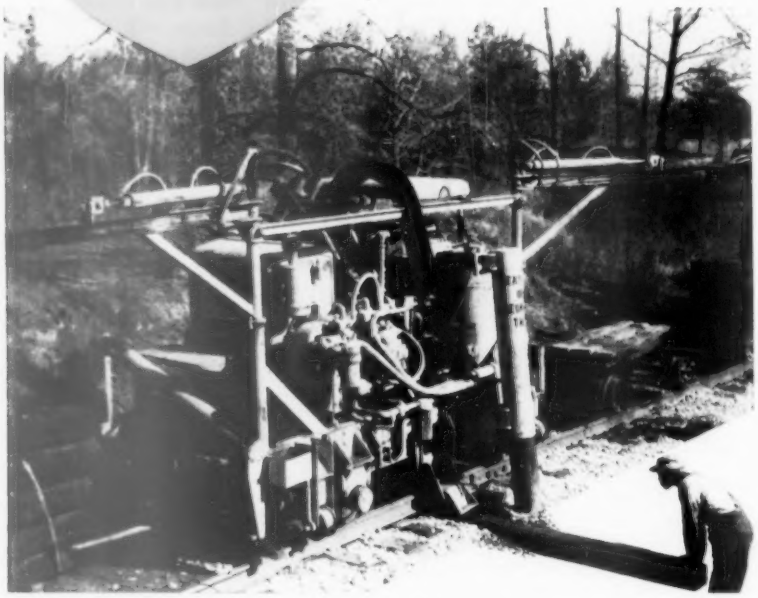
a RAILWAY AGE time-saver page

HOW TO REPLACE TIES *economically*

... with minimum disturbance to the track

R·M·C TIE*Master*

TieMaster does the complete tie replacement job, using only an operator and two laborers to attain speeds of better than one tie per minute. Only the TieMaster does all essential tie replacement steps—lifting the rails enough to clear tie plates, removing old tie, scarifying the bed, and inserting new tie. *Bulletin T-55.*



Railway Maintenance Corporation

Pittsburgh 30, Pa.

McWilliams Tampers

•

TieMaster, LineMaster, SpikeMaster, Tie Spacer and five other track maintenance machines

•

R.M.C. One-Spot Car Repair System

People in the News

ATLANTIC COAST LINE.—**J. W. Plant,** general superintendent—special studies, has been placed in charge of the transportation and service phase of piggyback operations, at Jacksonville, Fla. **E. W. Thomas,** general agent, Sarasota, Fla., named general agent—piggyback service, Jacksonville, in charge of coordinating service and solicitation. **Frank Weathersbee, W. M. Reeves, Jr., J. E. Patterson,** and **W. R. Duhy** named general agents at Lake Wales, Sarasota, Ocala (Fla.) and New York, respectively.

Claude H. Ethridge, assistant freight traffic manager, Orlando, Fla., retires Dec. 8. **W. T. Quarles,** assistant general freight agent, Jacksonville, Fla., transferred to Orlando.

CANADIAN NATIONAL.—**Winsby Walker,** superintendent shops at Moncton, N.B., retired. **Kenneth W. Thomson,** superintendent locomotive shops, Transcona, Man., succeeds Mr. Walker.

H. C. Russell, employee relations officer—express, Montreal, appointed general superintendent—express, Western district, Winnipeg, succeeding **F. V. Clare,** retired.

Donald R. Ellison appointed assistant transport economist, Atlantic region, Moncton.

Sydney W. Logan, traveling freight agent, Moncton, named division freight agent for Prince Edward Island.

David Kantor, general agent, CNR-Grand Trunk, Chicago, promoted to assistant to the general freight traffic manager there, succeeding **William McLeod,** appointed general freight agent, rates. **Leonard M. Taylor,** training supervisor, freight traffic department, Chicago, named to replace Mr. Kantor.

C. Albert Berube, superintendent, Campbellton division, appointed acting general superintendent, Maritime district, Moncton, N.B., replacing **D. W. Blair,** temporarily assigned to special duties. **W. R. Mitchell,** assistant superintendent, Moncton, named acting superintendent at Campbellton. **John L. Teed,** assistant superintendent, Fredericton, N.B., transferred to the Northumberland division at Moncton, replacing Mr. Mitchell. **Angus R. MacInnis,** trainmaster, Napadogan, N.B., transferred to Fredericton. **Edward P. Ronayne,** trainmaster, Bishop's Falls, N.F., transferred to New Glasgow, succeeding **S. E. Spencer,** appointed work study officer (transportation), at Moncton. **J. H. Pike,** operation trainee, Moncton, appointed acting trainmaster, Bishop's Falls, succeeding Mr. Ronayne. **Fabian M. Kennedy,** assistant to manager, St. John's, N.F., appointed regional coordinator of work study, Atlantic region, Moncton. **M. F. Keith Leighton,** division engineer, Moncton, named work study officer—engineering at that point. **Donald E. Holmes,** methods analyst, Montreal, named work study officer—mechanical, Moncton. **John G. Murray,** division engineer, New Glasgow, succeeds Mr. Leighton.

Mervyn C. Nystrom
SP

Jasper A. Berlin
Northwestern Motor

CHESAPEAKE & OHIO.—**M. M. Cronk**, vice president—passenger traffic and labor relations, Cleveland, retired Nov. 30. **Owen Clarke**, vice president, will be in charge of labor relations, in addition to his present responsibilities. **Howard Skidmore**, director of public relations, appointed director of public relations and passenger traffic.

NEW YORK CENTRAL.—**Robert S. Eisenhauer**, director of public relations, named director of public relations and advertising. **Clifford H. Ramsdell**, who has joined **Thomas J. Deegan Company, Inc.**, as a vice president (RA, Nov. 23, p. 38), was formerly director of advertising. **Richard C. Marshall**, director of the News Bureau, appointed assistant director of public relations. **Charles G. Warnick**, western district director of public relations, Cleveland, named assistant director of advertising. **Joseph P. Flynn**, community relations representative at New York, succeeds Mr. Warnick in Cleveland.

SOUTHERN PACIFIC.—**Mervyn C. Nystrom**, general purchasing agent, Southern Pacific Transportation System, named vice president—purchases and stores, SP.

Supply Trade

Jasper A. Berlin has been elected president of **Northwestern Motor Co.**, Eau Claire, Wis. He was formerly executive vice president of **Chippewa Woolen Mills**.

L. W. Metzger, assistant vice president—sales, is in charge of a new branch office of the **Standard Car Truck Co.** of Chicago, established in the Suburban Station Building, Philadelphia, Pa. This office will co-ordinate all the company's activities in the Northeastern United States and will provide an on-the-spot sales and service facility for all railroads in that area.

Eben C. Hall has been appointed director of export sales of the American Car & Foundry division of **ACF Industries, Inc.** Mr. Hall was formerly engaged in export sales for the Materials Handling Division of Yale & Towne Manufacturing Co.

Trans-Lite, Inc. of Milford, Conn., manufacturers of lighting fixtures and air distributors for railway passenger cars, has announced the purchase of the transportation product line of the **Delta-Star Electric Division, H. K. Porter Company, Inc.** This line, formerly produced at Porter's Electric Service Works in Philadelphia, will be transferred to Milford and will augment Trans-Lite's present railroad line.

Owen Buscho has been appointed St. Louis district manager, **Fairmont Railway Motors, Inc.**, to succeed the late **George F. Adams** (RA, Nov. 16, p. 25).

Fred M. Groff has been appointed assistant district manager, **Stran-Steel Corp.**, Chicago. Mr. Groff will assist with the sale of Stran-Steel's Nailable Steel Flooring, Steel Grain Door Nailer, and Steel Anchor Lining.

Leslie B. Worthington has been elected president and chief administrative officer of **United States Steel Corp.**, succeeding the late **Walter F. Munford**. Mr. Worthington was formerly president of the Columbia-Geneva Steel Division of United States Steel at San Francisco.

Lines 1000 to 2000 Feet of Track per Hour!

R·M·C·

WHEEL-MOUNTED LINE Master

Using only an operator and one man for sighting, LineMaster provides outstanding maintenance economies. With lining head anchored to roadbed by a power-driven spud inserted in the crib, hydraulic cylinders under precise control of the operator move track in either direction. Available in wheel-mounted and crawler-mounted types.

Railway Maintenance Corporation

BOX 1888, PITTSBURGH 30, PA.

This Cat No. 12 Motor Grader is spreading granular slag as sub-ballast for roadbed. It spreads 15 carloads a day, each car holding 60 cu. yd. User: Baltimore & Ohio Railroad, Baltimore, Maryland. On this and other jobs the No. 12 works 8 hours a day, 6 days a week, all year round.

LOOK! THESE IMPROVEMENTS IN THE No. 12 PAY OFF IN EVEN HIGHER PRODUCTION!

Increased throat clearance and final drive **New blade, lift and circle** **New, two-tooth power control clutches** **One-piece case for transmission** **New, positive mechanical lock**

Since it was introduced twenty-one years ago, the Caterpillar No. 12 Motor Grader has earned the title "standard of the industry." Constant improvements have kept it the undisputed leader in its class. Here are the latest improvements that enable you to get even more work at lower cost with less maintenance from this high-production machine:

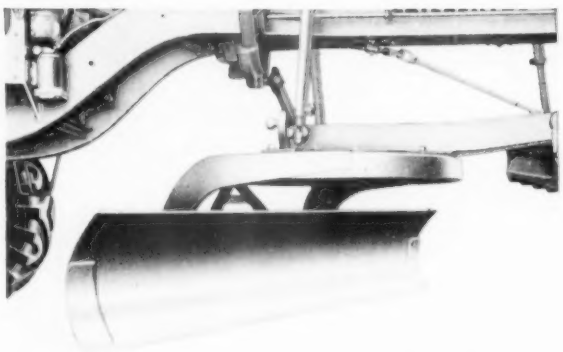
1 Clearance between the top edge of the blade and bottom edge of the circle has been increased to 5 INCHES. This provides improved rolling action, allows more material to move across the blade for greater production.

2 Blade thickness has been increased to 7/8 inch and blade beams have been increased in length and thickness to handle heavier loads. Lift arms have been lengthened and links shortened to enable operator to obtain all blade angles more easily. Circle reverse gear housing has been redesigned for better clearance as well as to increase the life of components and make service adjustments easier.

3 There's a new, stronger one-piece case for the transmission and final drive. This eliminates possible leakage at gaskets. In addition, transmission bearings have been strengthened for longer gear life.

4 New mechanical controls for reduced kickback, easier engagement. New power control clutches have two teeth, instead of four, and improved contact angles. They are more positive to engage, easier to hold in position.

5 New blade controls feature a positive mechanical lock—exclusive with Caterpillar. When the control is in neutral, the power shaft is locked by a set of gear teeth to prevent creeping.



See the improved No. 12 at your Caterpillar Dealer. Whatever the job, he has the right capacity motor grader for it. Besides the 115 HP No. 12, there's the big new 150 HP No. 14 and 75 HP No. 112. Ask for a demonstration!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

STEP UP PRODUCTION WITH THE IMPROVED No. 12

Rail Labor's Share 'Alarming'

Labor's share of the total earnings from direct railroad operations has been increasing at "an alarming rate" during the last three decades, the Investment Bankers Association of America was told last week.

The association's Railroad Securities Committee submitted figures supporting the statement (*see box*). The committee's report was made at the association's 48th annual convention in Miami Beach.

These figures, the committee said, "are not intended to reflect on the propriety of labor's share of railroad earnings. They are given to emphasize the unfavorable trend in capital's participation in the earnings which for the year 1958 was considerably less than one-half as large as during the prosperous 1920's and only slightly more than one-half during the depression of the 1930's.

"By its nature, the railroad industry is heavily dependent on manpower to produce its transportation service. Thus, a maladjustment between the cost of labor and the prices obtainable for the service is a serious threat to the future of the railroads, and their ability to meet the transportation needs of the nation.

"Increasing use of labor saving devices is only a partial answer to the problem and has practical limits both in application and in the ability to make the capital investments required. Featherbedding labor practices in particular constitute a needless drain on the financial resources of the railroads, and it is hoped that the negotiation of work agreements now under way will result in the termination of make-work rules which are costing the industry in excess of $500 million annually. Thus, we consider it absolutely essential that the current labor negotiations achieve a fair settlement which must include the elimination of costly, inefficient and uneconomic labor practices."

The committee noted that the railroads' rate of return this year will be about 3%, compared with 2.76% in 1958, and added:

"A sound relationship between invested capital and earnings is necessary, if a proper credit base is to be maintained for the purpose of attracting new capital in the proper form to the enterprise. It need hardly be said that the rate of return on property investment in the railroad industry has not been adequate in recent years to attract sufficient capital to take full advantage of technological advancements in the art of transportation."

Division of Earnings*

PERIOD:	% to Labor	% to Capital
5 years 1925-1929	69.6	30.4
5 years 1930-1934	76.3	23.7
5 years 1935-1939	76.6	23.4
5 years 1946-1950	84.6	15.4
5 years 1951-1955	83.5	16.5
3 years 1956-1958	85.4	14.6
Year 1958	87.0	13.0

*The ratios represent a division of the sum of salaries and wages, health and welfare charges and unemployment taxes (all going to labor) plus net railway operating income (to capital).

Letters from Readers

Institutional Handicaps

Birmingham, Ala.

To the Editor:

I have read with interest and appreciation the editorial entitled "Unity is Vital on Rules Issue," appearing on the Action Page of the Nov. 9 issue of Railway Age.

I believe this is the best statement I have seen on the broad railroad problems and I like the idea of labeling the major problems as institutional handicaps. The only thing I would add would be a sentence under Institutional Handicap No. 1—Regulation—which would point out the unwise policy followed by the administrative commissions in restricting railroads to the rails and failing to recognize that transportation is a movement of people and goods and the transportation company should be allowed to utilize any feasible means of transport.

John E. Tilford
Chairman, Advisory Committee
Louisville & Nashville

'Primer on Inflation'

Newark, N. J.

To the Editor:

Thank you for the Railway Age *Primer on Inflation*. The interest shown by you and by many other citizens throughout the nation is most encouraging to all of us working on this project.

The Washington conference [of citizens to fight inflation] was attended by the heads of 48 organizations and associations who were concerned, as citizens, with the effect of inflation on our country. This group endorsed the idea of a massive citizens' crusade to promote sound economic growth and stability. To implement this idea, the group voted to form a steering committee and a national council to spearhead the campaign. This organizational work is being carried out now as rapidly as possible.

I am forwarding the copy of your publication to the national council. I am sure they will find it a valuable addition to their research materials.

H. Bruce Palmer
President
Mutual Benefit Life Insurance Co.

You Ought To Know...

Flexi-Van traffic on the Milwaukee continues to grow. Since the system began operating about 10 months ago, loadings have increased about 25% each month over the preceding month. Booming business has led the road to order new equipment (see page 35) and to plan for loading stations at additional points (11 cities now have Milwaukee Flexi-Van service).

N&W-Virginian merger became official at 12:01 a.m. Dec. 1. First train movement between the merged lines occurred 70 minutes later when two Virginian diesel units moved 200 loaded coal cars from Abilene, Va., over to the N&W, west of Crewe. However, it will be another year before completion of new trackage, signals and other changes permits a completely integrated operation.

Abandonment of the Chicago North Shore & Milwaukee looks like a good bet to produce a dispute between state and federal regulators. An ICC examiner has approved abandonment, provided the line can't be kept operating through sale within a specified time. But the Illinois Commerce Commission has denied the electrified commuter line permission to quit. The state commission called the road an important and necessary service and contended that it "has not exhausted all its means to operate profitably."

Industrial development is the responsibility of the transportation industry as a whole, not the railroads alone, says J. Russel Coulter, president of the Toledo, Peoria & Western. He told the Peoria (Ill.) chapter of Delta Nu Alpha that while the barge lines might point to "isolated" efforts at industrial development, he was aware of no such activity on the part of motor carriers and air lines.

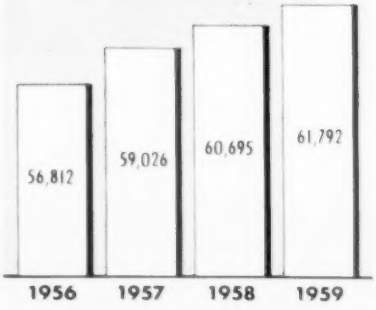
Proper use of DF equipment may get new emphasis at future meetings of shippers advisory boards. Carl A. Naffziger, director of the AAR Freight Loss and Damage Prevention, has asked that the subject be docketed for "serious discussion" by the loss and damage prevention committees of the regional boards. The Mid-West board, for one, will cooperate. I. D. Nemec, FL&DP chairman, is urging shippers and receivers — especially those using DF cars—to participate in a discussion of the problem at the board's Jan. 27 meeting in Chicago. He cites, in addition to Mr. Naffziger's request, an outline of the problem presented in Railway Age Sept. 28 (p. 14).

Two leasing services for small aluminum containers will be inaugurated Jan. 1 by Thornley Engineering Co., Toronto. One service, for 330-lb containers, will apply only to shipments via Canadian National Railways between specified Canadian cities. The other service, for containers with capacities up to 1,020 lbs, will be on a monthly rental basis for shipment by any mode of transportation. On the first service, the shipper will pay normal freight on net weight only, with the CNR returning containers free.

"Man of the Year" named by the Association of Railroad Advertising Managers is Santa Fe's general advertising manager, Arthur A. Dailey. Mr. Dailey was cited for the broad scope of the road's advertising program and for his outstanding contributions to railroad advertising.

...And Watch

Gross Ton Miles Per Freight - Train Hour
(First 9 Months Averages)



Modified support has been given by the particularly-interested National Small Shipments Traffic Conference to the Eastern railroads' proposal for a one-year trial of rail routing of LCL freight. The NSSTC's backing—"so carriers may take steps to improve service and reduce costs"—is subject to more complete information concerning "mechanics, methods and legal aspects" of rail routing.

Fare increases affecting about 35% of Chicago Transit Authority's riders will be required to offset increased operating costs chargeable to newly-negotiated wage increases for CTA operating employees. Under a three-year agreement with the Street, Electric Railway and Motor Coach Employees union, about 12,250 CTA workers will get basic wage hikes totaling 15½ cents. In addition, present cost-of-living allowances (12½ cents) become part of the basic rate. CTA estimates the first-year cost of the agreement will be about $2,100,000, if applied to all employees.

"Campaign trains" for Presidential candidates may be revived next year. At least influential Democrats are arguing that trains have some pretty potent advantages over planes. They say that station crowds are better than airport crowds and planes isolate the candidate from many advisers, local politicians, etc.

Shortage of hopper cars in the heavy demand growing out of the termination of the steel strike prompted B&O President Howard E. Simpson to write an open letter to shippers and receivers in the coal, steel and related industries on line. He pointed out that the B&O's regular fleet of more than 47,000 hopper cars had provided a surplus of coal cars for the 26 months up to October 1959 and, further, that coal tonnage on the B&O has declined each year since 1956, although B&O's coal capacity has increased in the same period. Noting that B&O has secured 1,300 cars from western roads for iron ore, thus releasing home cars for coal, Mr. Simpson called for teamwork: railroads to move cars faster and shippers and receivers to load and unload promptly.

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Looking for a job?

Looking for a man?

use this space to

get reliable leads

quicker results

EMPLOYMENT OPPORTUNITIES

SECTION

Railway Age, 30 Church St., New York 7, N. Y.

CLASSIFIED ADVERTISEMENTS

FOR SALE

REBUILT

RAILROAD CARS FOR INTERPLANT USE

GONDOLAS • BOX • FLAT

ERMAN-HOWELL DIVISION

LURIA STEEL & TRADING CORP.

332 South Michigan Avenue

Chicago 4, Illinois

WEbster 9-0500

APPRENTICE TRAINING

Since 1909, the Railway Educational Bureau has trained men for a number of major railroads. We furnish the texts, questions and grading service for all technical instruction covering 3- or 4-year programs. The study programs are raising the skill and usefulness of apprentices on many railroads today. The Bureau is staffed and its texts authored by railroad men. Information is available describing methods used and fields covered. Also special help is available for advancement. THE RAILWAY EDUCATIONAL BUREAU, 1809 Capitol Avenue, Omaha 2, Nebraska.

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Railroads in 1958 paid out almost $700 million in wages to the principal classifications of clerical and accounting employees (not official positions). This is not, of course, the total clerical and accounting expenditure—but gives some indication of the magnitude of the outlay.

The suggestion keeps recurring that, by greater use of electronic data processing, the railroads might (1) considerably reduce their clerical and accounting expense and (2) get more statistical information than that now provided them. A great deal of progress has already been made as regards item (1). Some progress has been made in the realm of item (2), and several rather ambitious suggestions have been made in this sector. For example:

(a) Suppose railroads were to get dependable revenue and cost figures on a punched card for every single shipment. Would that not give them mass data, for economical processing, by which they could calculate rate progressions which would approach the "optimum" level—both from the standpoint of net earnings, and in fortifying the railroads' competitive position?

(b) What if railroads had complete information, on punched cards, of a representative "sample" of shipments by types of transportation (weight, distance moved and type of carrier used)? Would not computations from such data enable railroads to keep track of "potential" tonnage of each commodity, and indicate those places where rail tonnage (in relation to total) is growing, is stationary or is declining?

(c) Enthusiasts for electronic data processing like to imagine the possibility that all railroad rates and tariffs might be simplified to the degree that they could be represented by punched cards; and that inter-railroad divisions could be similarly disciplined for machine processing. (The day of automation of railroad rate quotation, and of turning revenue accounting over to computers, is probably a long way off, if indeed it will ever come).

Such assignments as these three are enormous in scope—but on (a) and (b) a beginning has been made in several places—one of them by the Traffic Executive Association of the Eastern Railroads. Chairman E. V. Hill of the association—in an address to the Railway Systems & Procedures Association early in October—touched briefly on the work being undertaken in this sector. He said, in part:

"The Eastern Railroads decided to undertake a comprehensive job of examining railroad traffic volume in relation to tonnage of production and transportation (by all methods) of each important commodity—to find out how much tonnage was escaping us. And also to check our rates and our costs—compared to truck transportation costs—of each of these commodities.

"The analysis of traffic moving by rail—by commodity, by mileage blocks, and by weight blocks—is derived from the ICC 1% sample waybill punch cards, for Official Territory, but we punch into these cards much more information than is contained in the cards when received from ICC.

"The principal information our cards show, for each waybill in the 1% sample, is: Commodity number (both AAR Commodity Code and UFC number), type of car used, distance, weight, and railroad cost (ICC formula). With this information on punched cards, the opportunities for computations of significant summary data are almost limitless.

"We know practically everything there is to know about volume, length of haul, range of weight of lading, rates charged and railroad out-of-pocket costs on each of the major commodities we are handling. We also put into the computer a truck cost estimate—so we get an analysis which shows just how our rates and costs compare with costs of truck operation in hauling this particular commodity.

"However, you can't make rates wisely just by knowing what railroad traffic is. You have to know what your total market is—how much of each commodity is moving, not only by rail but by all forms of transportation—trucks especially. This information must come from shippers and it is a slow process. We have done it, on a sampling basis, on several commodities and have employed the Census Bureau to gather such data for us on a much larger scale.

"With data shown in these tabulations, combined with that provided by analysis of the waybill sample, competent rate people can, with assurance, construct rates which should go far to getting on the rails the traffic we are best qualified to handle."

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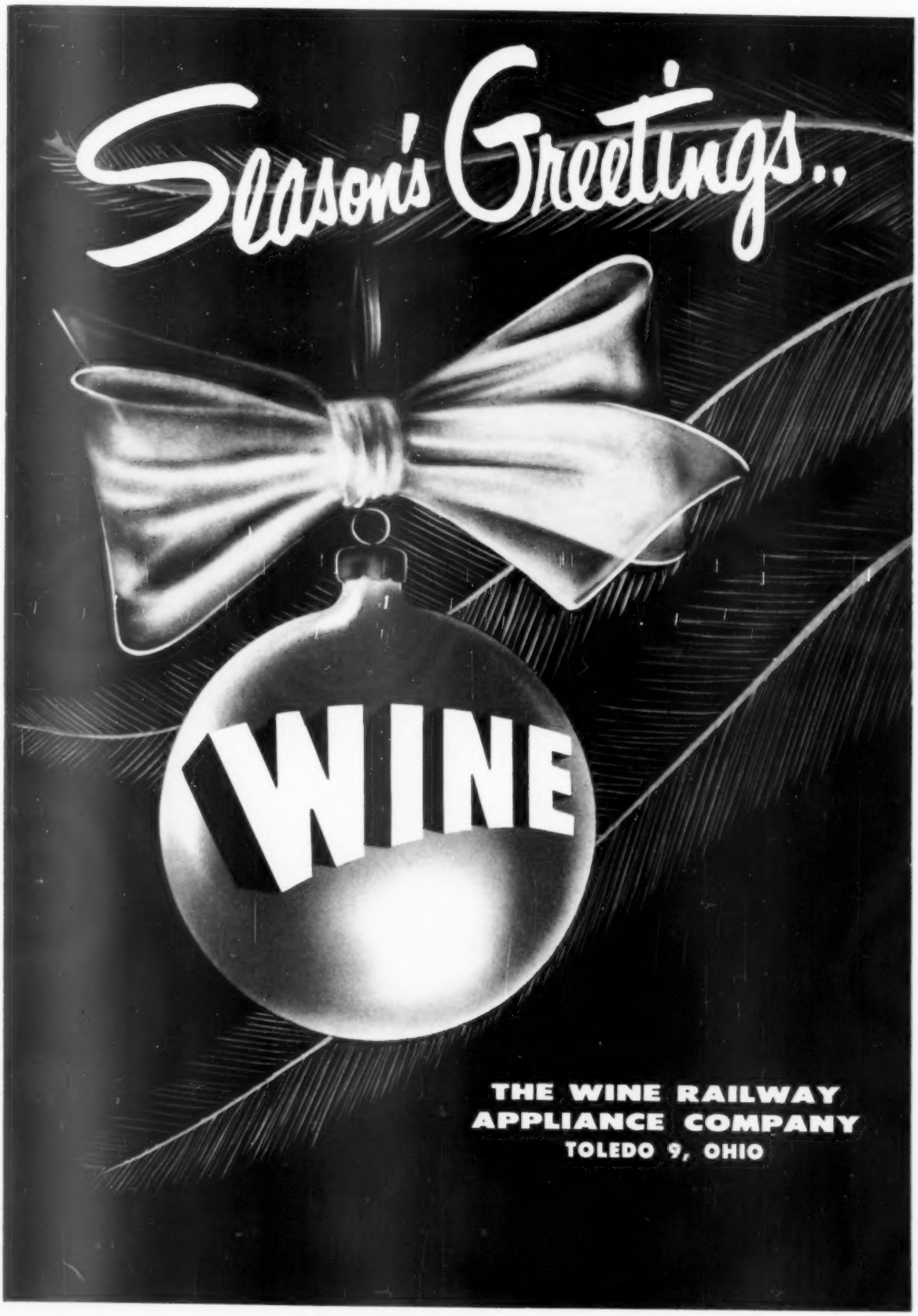
In short, electronic analysis of sample mass data on the whole range of freight traffic is getting a thorough trial—to see whether such information will permit railroads to propose rates which will improve traffic and earnings. If this effort yields tangible and useful results, the suggested application of modern data processing methods to even more complex areas (e.g., item c) might get some attention. But first things come first. No use launching a space ship with human passengers until the contraption is first tried out on less ambitious flights.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